SEQUENCE LISTING

<110> Millennium Pharmaceuticals, Inc.
      Silos-Santiago, Inmaculada
      Karicheti, Venkateswarlu
      Eliasof, Scott D.

<120> METHODS AND COMPOSITIONS FOR TREATING
   PAIN AND PAINFUL DISORDERS USING 16386, 15402, 21165, 1423,
   636, 12303, 21425, 27410, 38554, 38555, 55063, 57145, 59914,
   94921, 16852, 33260, 58573, 30911, 85913, 14303, 16816,
   17827 OR 32620

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<151> 2003-02-04

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Pro Gly Glu Phe Glu Ser Lys Tyr Phe Glu Phe His Gly Val Arg Leu
            15   20   25

ccg ccc ttc tgc cgc ggg aag atg gag gag atc gcc aac ttc ccg gtg   149
Pro Pro Phe Cys Arg Gly Lys Met Glu Glu Ile Ala Asn Phe Pro Val
        30   35   40

cgg ccc agc gac gtg tgg atc gtc acc tac ccc aag tcc ggc acc agc   197
Arg Pro Ser Asp Val Trp Ile Val Thr Tyr Pro Lys Ser Gly Thr Ser
    45   50   55

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ttg ctg cag gag gtg gtc tac ttg gtg agc cag ggc gct gac ccc gat    245
Leu Leu Gln Glu Val Val Tyr Leu Val Ser Gln Gly Ala Asp Pro Asp
 60              65              70                  75

gag atc ggc ttg atg aac atc gac gag cag ctc ccg gtc ctg gag tac    293
Glu Ile Gly Leu Met Asn Ile Asp Glu Gln Leu Pro Val Leu Glu Tyr
             80              85                  90

cca cag ccg ggc ctg gac atc atc aag gaa ctg acc tct ccc cgc ctc    341
Pro Gln Pro Gly Leu Asp Ile Ile Lys Glu Leu Thr Ser Pro Arg Leu
         95              100             105

atc aag agc cac ctg ccc tac cgc ttt ctg ccc tct gac ctc cac aat    389
Ile Lys Ser His Leu Pro Tyr Arg Phe Leu Pro Ser Asp Leu His Asn
         110             115             120

gga gac tcc aag gtc atc tat atg gct cgc aac ccc aag gat ctg gtg    437
Gly Asp Ser Lys Val Ile Tyr Met Ala Arg Asn Pro Lys Asp Leu Val
         125             130             135

gtg tct tat tat cag ttc cac cgc tct ctg cgg acc atg agc tac cga    485
Val Ser Tyr Tyr Gln Phe His Arg Ser Leu Arg Thr Met Ser Tyr Arg
140             145             150             155

ggc acc ttt caa gaa ttc tgc cgg agg ttt atg aat gat aag ctg ggc    533
Gly Thr Phe Gln Glu Phe Cys Arg Arg Phe Met Asn Asp Lys Leu Gly
             160             165             170

tac ggc tcc tgg ttt gag cac gtg cag gag ttc tgg gag cac cgc atg    581
Tyr Gly Ser Trp Phe Glu His Val Gln Glu Phe Trp Glu His Arg Met
             175             180             185

gac tcg aac gtg ctt ttt ctc aag tat gaa gac atg cat cgg gac ctg    629
Asp Ser Asn Val Leu Phe Leu Lys Tyr Glu Asp Met His Arg Asp Leu
             190             195             200

gtg acg atg gtg gag cag ctg gcc aga ttc ctg ggg gtg tcc tgt gac    677
Val Thr Met Val Glu Gln Leu Ala Arg Phe Leu Gly Val Ser Cys Asp
    205             210             215

aag gcc cag ctg gaa gcc ctg acg gag cac tgc cac cag ctg gtg gac    725
Lys Ala Gln Leu Glu Ala Leu Thr Glu His Cys His Gln Leu Val Asp
220             225             230             235

cag tgc tgc aac gct gag gcc ctg ccc gtg ggc cgg gga aga gtt ggg    773
Gln Cys Cys Asn Ala Glu Ala Leu Pro Val Gly Arg Gly Arg Val Gly
             240             245             250

ctg tgg aag gac atc ttc acc gtc tcc atg aat gag aag ttt gac ttg    821
Leu Trp Lys Asp Ile Phe Thr Val Ser Met Asn Glu Lys Phe Asp Leu
             255             260             265

gtg tat aaa cag aag atg gga aag tgt gac ctc acg ttt gac ttt tat    869
Val Tyr Lys Gln Lys Met Gly Lys Cys Asp Leu Thr Phe Asp Phe Tyr
         270             275             280

tta taa taacagaaac aacaacctgc atgctcacaa tacccagaca gtctactagc    925
Leu  *


caaaagtcct gtatgcattc atttattcct tgctggacaa actctggaag cagcgtgtga 985
aacagcgggg gaaggaaga gcggcgtgag cggagggagt gtgatgattc ccaaccgaag 1045
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2

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tgagcactac acatgatcct tctgtgcttg cttgcatctt taataaagac atgttcccgg 2365
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<212> PRT
<213> Homo Sapiens

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            20                  25                  30
Gly Lys Met Glu Glu Ile Ala Asn Phe Pro Val Arg Pro Ser Asp Val
        35                  40                  45
Trp Ile Val Thr Tyr Pro Lys Ser Gly Thr Ser Leu Leu Gln Glu Val
    50                  55                  60
Val Tyr Leu Val Ser Gln Gly Ala Asp Pro Asp Glu Ile Gly Leu Met
65                  70                  75                  80
Asn Ile Asp Glu Gln Leu Pro Val Leu Glu Tyr Pro Gln Pro Gly Leu
                85                  90                  95
Asp Ile Ile Lys Glu Leu Thr Ser Pro Arg Leu Ile Lys Ser His Leu
            100                 105                 110
Pro Tyr Arg Phe Leu Pro Ser Asp Leu His Asn Gly Asp Ser Lys Val
        115                 120                 125
Ile Tyr Met Ala Arg Asn Pro Lys Asp Leu Val Val Ser Tyr Tyr Gln
    130                 135                 140
Phe His Arg Ser Leu Arg Thr Met Ser Tyr Arg Gly Thr Phe Gln Glu
145                 150                 155                 160
Phe Cys Arg Arg Phe Met Asn Asp Lys Leu Gly Tyr Gly Ser Trp Phe
                165                 170                 175
Glu His Val Gln Glu Phe Trp Glu His Arg Met Asp Ser Asn Val Leu
            180                 185                 190
Phe Leu Lys Tyr Glu Asp Met His Arg Asp Leu Val Thr Met Val Glu
        195                 200                 205
Gln Leu Ala Arg Phe Leu Gly Val Ser Cys Asp Lys Ala Gln Leu Glu
    210                 215                 220
Ala Leu Thr Glu His Cys His Gln Leu Val Asp Gln Cys Cys Asn Ala
225                 230                 235                 240
Glu Ala Leu Pro Val Gly Arg Gly Arg Val Gly Leu Trp Lys Asp Ile
                245                 250                 255
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3

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Phe Thr Val Ser Met Asn Glu Lys Phe Asp Leu Val Tyr Lys Gln Lys
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Met Gly Lys Cys Asp Leu Thr Phe Asp Phe Tyr Leu
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cgacgggccg cggcgcggag gcctcggggc aaggtggggc gggcctcccg agctcccagg 180
accccgcgcg cttcgcccac aggcccggcg aagcccgacc cgcgcggcgc ccccagggcc 240
aggggaggag cctaaggacc cggacgagcg ccgctccagt aggtgacaag aggaaacaag 300
aacctcagtt caggggaaac acagcaagga aatgtgagcc ccaggctgca gaaggaagag 360
tcagtgaatg gctgcggtgt gacaac atg cac cac cag tgg ctt ctg ctg gcc 413
                                 Met His His Gln Trp Leu Leu Leu Ala
                                  1               5

gca tgc ttt tgg gtg att ttc atg ttc atg gtg gct agc aag ttc atc   461
Ala Cys Phe Trp Val Ile Phe Met Phe Met Val Ala Ser Lys Phe Ile
 10              15                  20                  25

acg ttg acc ttt aaa gac cca gat gtg tac agt gcc aaa cag gag ttt   509
Thr Leu Thr Phe Lys Asp Pro Asp Val Tyr Ser Ala Lys Gln Glu Phe
                30                  35                  40

ctg ttc ctg aca acc atg ccg gaa gtg agg aag ttg cca gaa gag aag   557
Leu Phe Leu Thr Thr Met Pro Glu Val Arg Lys Leu Pro Glu Glu Lys
            45                  50                  55

cac att cct gag gaa ctg aag cca act ggg aag gag ctt cca gac agc   605
His Ile Pro Glu Glu Leu Lys Pro Thr Gly Lys Glu Leu Pro Asp Ser
            60                  65                  70

cag ctc gtt cag ccc ctg gtc tac atg gag cgc ctg gaa ctc atc aga   653
Gln Leu Val Gln Pro Leu Val Tyr Met Glu Arg Leu Glu Leu Ile Arg
     75                  80                  85

aac gtc tgc agg gat gat gcc ctg aag aat ctc tcg cac act cct gtc   701
Asn Val Cys Arg Asp Asp Ala Leu Lys Asn Leu Ser His Thr Pro Val
 90                  95                  100                 105

tcc aag ttt gtc ctg gac cga ata ttt gtc tgt gac aag cac aag att   749
Ser Lys Phe Val Leu Asp Arg Ile Phe Val Cys Asp Lys His Lys Ile
                110                 115                 120

ctt ttc tgc cag act ccc aaa gtg ggc aac acc cag tgg aag aaa gtg   797
Leu Phe Cys Gln Thr Pro Lys Val Gly Asn Thr Gln Trp Lys Lys Val
                125                 130                 135

ctg att gtt cta aat gga gca ttt tct tcc att gag gag atc ccc gaa   845
Leu Ile Val Leu Asn Gly Ala Phe Ser Ser Ile Glu Glu Ile Pro Glu
            140                 145                 150
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4

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aac gtg gtg cac gac cac gag aag aac ggc ctt cct cgg ctc tct tcc   893
Asn Val Val His Asp His Glu Lys Asn Gly Leu Pro Arg Leu Ser Ser
    155             160             165

ttc agt gat gca gaa att cag aag cga ttg aaa aca tac ttc aag ttt   941
Phe Ser Asp Ala Glu Ile Gln Lys Arg Leu Lys Thr Tyr Phe Lys Phe
170             175             180             185

ttt att gta aga gat ccc ttc gaa aga ctt att tct gca ttt aag gat   989
Phe Ile Val Arg Asp Pro Phe Glu Arg Leu Ile Ser Ala Phe Lys Asp
            190             195             200

aaa ttt gtt cac aat ccc cgg ttt gag cct tgg tac agg cat gag att  1037
Lys Phe Val His Asn Pro Arg Phe Glu Pro Trp Tyr Arg His Glu Ile
            205             210             215

gct cct ggc atc atc aga aaa tac agg agg aac cgg aca gag acg cgg  1085
Ala Pro Gly Ile Ile Arg Lys Tyr Arg Arg Asn Arg Thr Glu Thr Arg
            220             225             230

ggg atc cag ttt gaa gat ttc gtg cgc tac ctc ggc gat ccg aac cac  1133
Gly Ile Gln Phe Glu Asp Phe Val Arg Tyr Leu Gly Asp Pro Asn His
    235             240             245

aga tgg cta gac ctt cag ttt ggg gac cac atc att cac tgg gtg acg  1181
Arg Trp Leu Asp Leu Gln Phe Gly Asp His Ile Ile His Trp Val Thr
250             255             260             265

tat gta gag ctc tgt gct ccc tgt gag ata atg tac agt gtg att gga  1229
Tyr Val Glu Leu Cys Ala Pro Cys Glu Ile Met Tyr Ser Val Ile Gly
            270             275             280

cac cac gag acc ctg gag gac gat gcc cca tac atc tta aaa gag gct  1277
His His Glu Thr Leu Glu Asp Asp Ala Pro Tyr Ile Leu Lys Glu Ala
            285             290             295

ggc att gac cac ctg gtg tca tac ccg act atc cct ccg ggc att acc  1325
Gly Ile Asp His Leu Val Ser Tyr Pro Thr Ile Pro Pro Gly Ile Thr
        300             305             310

gtg tat aac aga acc aag gtg gag cac tat ttc ctg ggc atc agc aaa  1373
Val Tyr Asn Arg Thr Lys Val Glu His Tyr Phe Leu Gly Ile Ser Lys
    315             320             325

cga gac atc cga cgc ctg tat gcc cgt ttc gaa ggg gac ttt aag ctc  1421
Arg Asp Ile Arg Arg Leu Tyr Ala Arg Phe Glu Gly Asp Phe Lys Leu
330             335             340             345

ttt ggg tac cag aaa cca gac ttt ttg cta aac taa tgcataagac       1467
Phe Gly Tyr Gln Lys Pro Asp Phe Leu Leu Asn *
            350             355

ctatgaattc aaatatcttt attagacctg gggctaacca ggtgaagatc tgagcccaga 1527
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5

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<213> Homo Sapiens

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            20                  25                  30
Asp Val Tyr Ser Ala Lys Gln Glu Phe Leu Phe Leu Thr Thr Met Pro
        35                  40                  45
Glu Val Arg Lys Leu Pro Glu Glu Lys His Ile Pro Glu Glu Leu Lys
    50                  55                  60
Pro Thr Gly Lys Glu Leu Pro Asp Ser Gln Leu Val Gln Pro Leu Val
65                  70                  75                  80
Tyr Met Glu Arg Leu Glu Leu Ile Arg Asn Val Cys Arg Asp Asp Ala
                85                  90                  95
Leu Lys Asn Leu Ser His Thr Pro Val Ser Lys Phe Val Leu Asp Arg
            100                 105                 110
Ile Phe Val Cys Asp Lys His Lys Ile Leu Phe Cys Gln Thr Pro Lys
            115                 120                 125
Val Gly Asn Thr Gln Trp Lys Lys Val Leu Ile Val Leu Asn Gly Ala
    130                 135                 140
Phe Ser Ser Ile Glu Glu Ile Pro Glu Asn Val Val His Asp His Glu
145                 150                 155                 160
Lys Asn Gly Leu Pro Arg Leu Ser Ser Phe Ser Asp Ala Glu Ile Gln
                165                 170                 175
Lys Arg Leu Lys Thr Tyr Phe Lys Phe Phe Ile Val Arg Asp Pro Phe
            180                 185                 190
Glu Arg Leu Ile Ser Ala Phe Lys Asp Lys Phe Val His Asn Pro Arg
        195                 200                 205
Phe Glu Pro Trp Tyr Arg His Glu Ile Ala Pro Gly Ile Ile Arg Lys
    210                 215                 220
Tyr Arg Arg Asn Arg Thr Glu Thr Arg Gly Ile Gln Phe Glu Asp Phe
225                 230                 235                 240
Val Arg Tyr Leu Gly Asp Pro Asn His Arg Trp Leu Asp Leu Gln Phe
                245                 250                 255
Gly Asp His Ile Ile His Trp Val Thr Tyr Val Glu Leu Cys Ala Pro
                260                 265                 270
Cys Glu Ile Met Tyr Ser Val Ile Gly His His Glu Thr Leu Glu Asp
            275                 280                 285
Asp Ala Pro Tyr Ile Leu Lys Glu Ala Gly Ile Asp His Leu Val Ser
    290                 295                 300
Tyr Pro Thr Ile Pro Pro Gly Ile Thr Val Tyr Asn Arg Thr Lys Val
305                 310                 315                 320
Glu His Tyr Phe Leu Gly Ile Ser Lys Arg Asp Ile Arg Arg Leu Tyr
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Phe Leu Leu Asn
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cgcggacccc gctgcagtct cggggttctc agcacattta tggaagttta gggcctggac 240
agtggccccg agtccggcct gagagcgcag cctgggctgc tggcagggaa gaggaag atg 300
                                                                 Met
                                                                 1

tct gtg ctc agg cgg atg atg cgg gtt tcc aat cgc tct ctc ctc gcc   348
Ser Val Leu Arg Arg Met Met Arg Val Ser Asn Arg Ser Leu Leu Ala
            5                   10                  15

ttc atc ttc ttc ttc tcc ctc tct tcg tcc tgt ctg tac ttc atc tat   396
Phe Ile Phe Phe Phe Ser Leu Ser Ser Ser Cys Leu Tyr Phe Ile Tyr
        20                  25                  30

gtg gcc cca ggc atc gcc aac aca tat ctc ttt atg gta caa gct cga   444
Val Ala Pro Gly Ile Ala Asn Thr Tyr Leu Phe Met Val Gln Ala Arg
    35                  40                  45

ggt ata atg ttg aga gaa aat gtg aaa aca ata ggt cat atg atc agg   492
Gly Ile Met Leu Arg Glu Asn Val Lys Thr Ile Gly His Met Ile Arg
50                  55                  60                  65

ctg tac aca aat aaa aac agt acg ctc aac ggt aca gat tat ccc gaa   540
Leu Tyr Thr Asn Lys Asn Ser Thr Leu Asn Gly Thr Asp Tyr Pro Glu
                70                  75                  80

ggc aat aat tca agt gat tat ctt gtt caa aca aca acg tat ctc ccg   588
Gly Asn Asn Ser Ser Asp Tyr Leu Val Gln Thr Thr Thr Tyr Leu Pro
                85                  90                  95

gaa aac ttc aca tac tca cca tac ctc ccc tgt cca gaa aag ctg cct   636
Glu Asn Phe Thr Tyr Ser Pro Tyr Leu Pro Cys Pro Glu Lys Leu Pro
            100                 105                 110

tat atg cga gga ttc ctc aat gtc aat gta agc gaa gtc agt ttt gat   684
Tyr Met Arg Gly Phe Leu Asn Val Asn Val Ser Glu Val Ser Phe Asp
        115                 120                 125

gaa att cat caa ctc ttc tcc aag gat tta gat att gag cca ggg ggt   732
Glu Ile His Gln Leu Phe Ser Lys Asp Leu Asp Ile Glu Pro Gly Gly
130                 135                 140                 145

cat tgg agg cca aaa gac tgt aaa ccc aga tgg aag gtg gca gtt ctc   780
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7

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His Trp Arg Pro Lys Asp Cys Lys Pro Arg Trp Lys Val Ala Val Leu
             150                 155                 160

att cct ttc cgt aat cgc cat gaa cat ctt cca att ttt ttc tta cat   828
Ile Pro Phe Arg Asn Arg His Glu His Leu Pro Ile Phe Phe Leu His
             165                 170                 175

ctg att cca atg ctc cag aag cag cgg ctg gaa ttt gcg ttt tat gtc   876
Leu Ile Pro Met Leu Gln Lys Gln Arg Leu Glu Phe Ala Phe Tyr Val
             180                 185                 190

att gaa cag act ggc aca caa cct ttt aac cgt gcg atg ctt ttc aat   924
Ile Glu Gln Thr Gly Thr Gln Pro Phe Asn Arg Ala Met Leu Phe Asn
         195                 200                 205

gtg ggc ttc aaa gag gcc atg aaa gac agt gtc tgg gac tgt gta atc   972
Val Gly Phe Lys Glu Ala Met Lys Asp Ser Val Trp Asp Cys Val Ile
210                 215                 220                 225

ttc cac gat gtg gat cat cta cct gaa aat gac cgg aac tat tac gga  1020
Phe His Asp Val Asp His Leu Pro Glu Asn Asp Arg Asn Tyr Tyr Gly
                 230                 235                 240

tgt gga gaa atg cca cgt cat ttt gct gca aag ctg gat aaa tac atg  1068
Cys Gly Glu Met Pro Arg His Phe Ala Ala Lys Leu Asp Lys Tyr Met
             245                 250                 255

tat att ctt cca tat aaa gaa ttt ttt ggt ggt gta agt ggg ctg aca  1116
Tyr Ile Leu Pro Tyr Lys Glu Phe Phe Gly Gly Val Ser Gly Leu Thr
             260                 265                 270

gtg gaa caa ttt aga aag atc aat ggt ttt cct aat gcc ttc tgg gga  1164
Val Glu Gln Phe Arg Lys Ile Asn Gly Phe Pro Asn Ala Phe Trp Gly
         275                 280                 285

tgg gga gga gaa gat gat gac ctt tgg aac aga gtt cac tat gct gga  1212
Trp Gly Gly Glu Asp Asp Asp Leu Trp Asn Arg Val His Tyr Ala Gly
290                 295                 300                 305

tat aat gta acc aga cca gag gga gac tta gga aaa tac aag tca att  1260
Tyr Asn Val Thr Arg Pro Glu Gly Asp Leu Gly Lys Tyr Lys Ser Ile
                 310                 315                 320

cct cat cac cat aga ggt gaa gtc cag ttt tta gga cgg tat aaa tta  1308
Pro His His His Arg Gly Glu Val Gln Phe Leu Gly Arg Tyr Lys Leu
             325                 330                 335

cta agg tat tcc aag gag cgt cag tac atc gat gga ctg aac aat tta  1356
Leu Arg Tyr Ser Lys Glu Arg Gln Tyr Ile Asp Gly Leu Asn Asn Leu
         340                 345                 350

ata tat agg cca aaa ata ctg gtt gat agg ttg tat aca aac ata tct  1404
Ile Tyr Arg Pro Lys Ile Leu Val Asp Arg Leu Tyr Thr Asn Ile Ser
         355                 360                 365

gta aac ctc atg cca gag tta gct cca atc gaa gac tat taa          1446
Val Asn Leu Met Pro Glu Leu Ala Pro Ile Glu Asp Tyr  *
370                 375                 380

aagaagtggc tgtcgtggca aggtagacca caatgctgga tcataaactt ggagcgcgct  1506
cttagtggag gtcagtgatt ggctgtgtca cagtgccctt ttctctgaga agagccagca  1566
gtccacagtg tttacagagt gggactatat acagtcaccc ttctctcacc cgtcctccct  1626
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8

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gctctgagac acacccctgt ggcgagcacc gcagaaatgg gaagccacta cttaagatcg 1686
gaagttaaga gagctccctc cgaagagaaa attttttatac taaaatctat aatttaattc 1746
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ttggactttt atagacattt tttatttgca tgaaaaaaac tcactaaatt tacatcacta 1926
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cagtaaactg ttatactagt tttgagcttt agacctcagc cttttgtgtg gaagaagtca 2046
cagctttctt aggctttaaa ggaaagaag gaaggactta aatagctttt cttcctaccg 2106
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aagataaaata cttagtagat aaaaacaaat tttaagttta gttttcagac atagaatttc 2586
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aaaaaaaaaa aaaaaaaaaa aaaaa                                       3931
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<210> 6
<211> 382
<212> PRT
<213> Homo Sapiens

<400> 6

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Met Ser Val Leu Arg Arg Met Met Arg Val Ser Asn Arg Ser Leu Leu
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Ala Phe Ile Phe Phe Phe Ser Leu Ser Ser Ser Cys Leu Tyr Phe Ile
             20                  25                  30
Tyr Val Ala Pro Gly Ile Ala Asn Thr Tyr Leu Phe Met Val Gln Ala
         35                  40                  45
Arg Gly Ile Met Leu Arg Glu Asn Val Lys Thr Ile Gly His Met Ile
     50                  55                  60
Arg Leu Tyr Thr Asn Lys Asn Ser Thr Leu Asn Gly Thr Asp Tyr Pro
 65                  70                  75                  80
Glu Gly Asn Asn Ser Ser Asp Tyr Leu Val Gln Thr Thr Thr Tyr Leu
                 85                  90                  95
Pro Glu Asn Phe Thr Tyr Ser Pro Tyr Leu Pro Cys Pro Glu Lys Leu
            100                 105                 110
Pro Tyr Met Arg Gly Phe Leu Asn Val Asn Val Ser Glu Val Ser Phe
            115                 120                 125
```

```
Asp Glu Ile His Gln Leu Phe Ser Lys Asp Leu Asp Ile Glu Pro Gly
    130                 135             140
Gly His Trp Arg Pro Lys Asp Cys Lys Pro Arg Trp Lys Val Ala Val
145                 150             155                 160
Leu Ile Pro Phe Arg Asn Arg His Glu His Leu Pro Ile Phe Phe Leu
                165             170             175
His Leu Ile Pro Met Leu Gln Lys Gln Arg Leu Glu Phe Ala Phe Tyr
            180             185             190
Val Ile Glu Gln Thr Gly Thr Gln Pro Phe Asn Arg Ala Met Leu Phe
        195             200             205
Asn Val Gly Phe Lys Glu Ala Met Lys Asp Ser Val Trp Asp Cys Val
    210             215             220
Ile Phe His Asp Val Asp His Leu Pro Glu Asn Asp Arg Asn Tyr Tyr
225             230             235                 240
Gly Cys Gly Glu Met Pro Arg His Phe Ala Ala Lys Leu Asp Lys Tyr
            245             250             255
Met Tyr Ile Leu Pro Tyr Lys Glu Phe Phe Gly Gly Val Ser Gly Leu
            260             265             270
Thr Val Glu Gln Phe Arg Lys Ile Asn Gly Phe Pro Asn Ala Phe Trp
    275             280             285             .
Gly Trp Gly Gly Glu Asp Asp Asp Leu Trp Asn Arg Val His Tyr Ala
    290             295             300
Gly Tyr Asn Val Thr Arg Pro Glu Gly Asp Leu Gly Lys Tyr Lys Ser
305             310             315                 320
Ile Pro His His His Arg Gly Glu Val Gln Phe Leu Gly Arg Tyr Lys
            325             330             335
Leu Leu Arg Tyr Ser Lys Glu Arg Gln Tyr Ile Asp Gly Leu Asn Asn
            340             345             350
Leu Ile Tyr Arg Pro Lys Ile Leu Val Asp Arg Leu Tyr Thr Asn Ile
            355             360             365
Ser Val Asn Leu Met Pro Glu Leu Ala Pro Ile Glu Asp Tyr
    370             375             380
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<210> 7
<211> 3924
<212> DNA
<213> Homo Sapiens

<220>
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<400> 7
atg gct ctg cgg agg ctg ggg gcc gcg ctg ctg ctg ctg ccg ctg ctc    48
Met Ala Leu Arg Arg Leu Gly Ala Ala Leu Leu Leu Leu Pro Leu Leu
 1               5                  10                  15

gcc gcc gtg gaa gaa acg cta atg gac tcc act aca gcg act gct gag    96
Ala Ala Val Glu Glu Thr Leu Met Asp Ser Thr Thr Ala Thr Ala Glu
                20                  25                  30

ctg ggc tgg atg gtg cat cct cca tca ggg tgg gaa gag gtg agt ggc   144
Leu Gly Trp Met Val His Pro Pro Ser Gly Trp Glu Glu Val Ser Gly
            35                  40                  45

tac gat gag aac atg aac acg atc cgc acg tac cag gtg tgc aac gtg   192
Tyr Asp Glu Asn Met Asn Thr Ile Arg Thr Tyr Gln Val Cys Asn Val
        50                  55                  60

ttt gag tca agc cag aac aac tgg cta cgg acc aag ttt atc cgg cgc   240
Phe Glu Ser Ser Gln Asn Asn Trp Leu Arg Thr Lys Phe Ile Arg Arg
```

```
cgt ggc gcc cac cgc atc cac gtg gag atg aag ttt tcg gtg cgt gac    288
Arg Gly Ala His Arg Ile His Val Glu Met Lys Phe Ser Val Arg Asp
                85                    90                    95

tgc agc agc atc ccc agc gtg cct ggc tcc tgc aag gag acc ttc aac    336
Cys Ser Ser Ile Pro Ser Val Pro Gly Ser Cys Lys Glu Thr Phe Asn
            100                   105                   110

ctc tat tac tat gag gct gac ttt gac tcg gcc acc aag acc ttc ccc    384
Leu Tyr Tyr Tyr Glu Ala Asp Phe Asp Ser Ala Thr Lys Thr Phe Pro
            115                   120                   125

aac tgg atg gag aat cca tgg gtg aag gtg gat acc att gca gcc gac    432
Asn Trp Met Glu Asn Pro Trp Val Lys Val Asp Thr Ile Ala Ala Asp
        130                   135                   140

gag agc ttc tcc cag gtg gac ctg ggt ggc cgc gtc atg aaa atc aac    480
Glu Ser Phe Ser Gln Val Asp Leu Gly Gly Arg Val Met Lys Ile Asn
145                   150                   155                   160

acc gag gtg cgg agc ttc gga cct gtg tcc cgc agc ggc ttc tac ctg    528
Thr Glu Val Arg Ser Phe Gly Pro Val Ser Arg Ser Gly Phe Tyr Leu
                165                   170                   175

gcc ttc cag gac tat ggc ggc tgc atg tcc ctc atc gcc gtg cgt gtc    576
Ala Phe Gln Asp Tyr Gly Gly Cys Met Ser Leu Ile Ala Val Arg Val
                180                   185                   190

ttc tac cgc aag tgc ccc cgc atc atc cag aat ggc gcc atc ttc cag    624
Phe Tyr Arg Lys Cys Pro Arg Ile Ile Gln Asn Gly Ala Ile Phe Gln
                195                   200                   205

gaa acc ctg tcg ggg gct gag agc aca tcg ctg gtg gct gcc cgg ggc    672
Glu Thr Leu Ser Gly Ala Glu Ser Thr Ser Leu Val Ala Ala Arg Gly
        210                   215                   220

agc tgc atc gcc aat gcg gaa gag gtg gat gta ccc atc aag ctc tac    720
Ser Cys Ile Ala Asn Ala Glu Glu Val Asp Val Pro Ile Lys Leu Tyr
225                   230                   235                   240

tgt aac ggg gac ggc gag tgg ctg gtg ccc atc ggg cgc tgc atg tgc    768
Cys Asn Gly Asp Gly Glu Trp Leu Val Pro Ile Gly Arg Cys Met Cys
                245                   250                   255

aaa gca ggc ttc gag gcc gtt gag aat ggc acc gtc tgc cga ggt tgt    816
Lys Ala Gly Phe Glu Ala Val Glu Asn Gly Thr Val Cys Arg Gly Cys
                260                   265                   270

cca tct ggg act ttc aag gcc aac caa ggg gat gag gcc tgt acc cac    864
Pro Ser Gly Thr Phe Lys Ala Asn Gln Gly Asp Glu Ala Cys Thr His
            275                   280                   285

tgt ccc atc aac agc cgg acc act tct gaa ggg gcc acc aac tgt gtc    912
Cys Pro Ile Asn Ser Arg Thr Thr Ser Glu Gly Ala Thr Asn Cys Val
        290                   295                   300

tgc cgc aat ggc tac tac aga gca gac ctg gac ccc ctg gac atg ccc    960
Cys Arg Asn Gly Tyr Tyr Arg Ala Asp Leu Asp Pro Leu Asp Met Pro
305                   310                   315                   320
```

```
tgc aca acc atc ccc tcc gcg ccc cag gct gtg att tcc agt gtc aat    1008
Cys Thr Thr Ile Pro Ser Ala Pro Gln Ala Val Ile Ser Ser Val Asn
                325                 330                 335

gag acc tcc ctc atg ctg gag tgg acc cct ccc cgc gac tcc gga ggc    1056
Glu Thr Ser Leu Met Leu Glu Trp Thr Pro Pro Arg Asp Ser Gly Gly
                340                 345                 350

cga gag gac ctc gtc tac aac atc atc tgc aag agc tgt ggc tcg ggc    1104
Arg Glu Asp Leu Val Tyr Asn Ile Ile Cys Lys Ser Cys Gly Ser Gly
                355                 360                 365

cgg ggt gcc tgc acc cgc tgc ggg gac aat gta cag tac gca cca cgc    1152
Arg Gly Ala Cys Thr Arg Cys Gly Asp Asn Val Gln Tyr Ala Pro Arg
    370                 375                 380

cag cta ggc ctg acc gag cca cgc att tac atc agt gac ctg ctg gcc    1200
Gln Leu Gly Leu Thr Glu Pro Arg Ile Tyr Ile Ser Asp Leu Leu Ala
385                 390                 395                 400

cac acc cag tac acc ttc gag atc cag gct gtg aac ggc gtt act gac    1248
His Thr Gln Tyr Thr Phe Glu Ile Gln Ala Val Asn Gly Val Thr Asp
                405                 410                 415

cag agc ccc ttc tcg cct cag ttc gcc tct gtg aac atc acc acc aac    1296
Gln Ser Pro Phe Ser Pro Gln Phe Ala Ser Val Asn Ile Thr Thr Asn
                420                 425                 430

cag gca gct cca tcg gca gtg tcc atc atg cat cag gtg agc cgc acc    1344
Gln Ala Ala Pro Ser Ala Val Ser Ile Met His Gln Val Ser Arg Thr
                435                 440                 445

gtg gac agc att acc ctg tcg tgg tcc cag cca gac cag ccc aat ggc    1392
Val Asp Ser Ile Thr Leu Ser Trp Ser Gln Pro Asp Gln Pro Asn Gly
    450                 455                 460

gtg atc ctg gac tat gag ctg cag tac tat gag aag gag ctc agt gag    1440
Val Ile Leu Asp Tyr Glu Leu Gln Tyr Tyr Glu Lys Glu Leu Ser Glu
465                 470                 475                 480

tac aac gcc aca gcc ata aaa agc ccc acc aac acg gtc acc gtg cag    1488
Tyr Asn Ala Thr Ala Ile Lys Ser Pro Thr Asn Thr Val Thr Val Gln
                485                 490                 495

ggc ctc aaa gcc ggc gcc atc tat gtc ttc cag gtg cgg gca cgc acc    1536
Gly Leu Lys Ala Gly Ala Ile Tyr Val Phe Gln Val Arg Ala Arg Thr
                500                 505                 510

gtg gca ggc tac ggg cgc tac agc ggc aag atg tac ttc cag acc atg    1584
Val Ala Gly Tyr Gly Arg Tyr Ser Gly Lys Met Tyr Phe Gln Thr Met
                515                 520                 525

aca gaa gcc gag tac cag aca agc atc cag gag aag ttg cca ctc atc    1632
Thr Glu Ala Glu Tyr Gln Thr Ser Ile Gln Glu Lys Leu Pro Leu Ile
    530                 535                 540

atc ggc tcc tcg gcc gct ggc ctg gtc ttc ctc att gct gtg gtt gtc    1680
Ile Gly Ser Ser Ala Ala Gly Leu Val Phe Leu Ile Ala Val Val Val
545                 550                 555                 560

atc gcc atc gtg tgt aac aga cgg ggg ttt gag cgt gct gac tcg gag    1728
Ile Ala Ile Val Cys Asn Arg Arg Gly Phe Glu Arg Ala Asp Ser Glu
```

12

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tac acg gac aag ctg caa cac tac acc agt ggc cac atg acc cca ggc    1776
Tyr Thr Asp Lys Leu Gln His Tyr Thr Ser Gly His Met Thr Pro Gly
            580                     585                 590

atg aag atc tac atc gat cct ttc acc tac gag gac ccc aac gag gca    1824
Met Lys Ile Tyr Ile Asp Pro Phe Thr Tyr Glu Asp Pro Asn Glu Ala
            595                     600                 605

gtg cgg gag ttt gcc aag gaa att gac atc tcc tgt gtc aaa att gag    1872
Val Arg Glu Phe Ala Lys Glu Ile Asp Ile Ser Cys Val Lys Ile Glu
            610                     615                 620

cag gtg atc gga gca ggg gag ttt ggc gag gtc tgc agt ggc cac ctg    1920
Gln Val Ile Gly Ala Gly Glu Phe Gly Glu Val Cys Ser Gly His Leu
625                     630                 635                 640

aag ctg cca ggc aag aga gag atc ttt gtg gcc atc aag acg ctc aag    1968
Lys Leu Pro Gly Lys Arg Glu Ile Phe Val Ala Ile Lys Thr Leu Lys
            645                     650                 655

tcg ggc tac acg gag aag cag cgc cgg gac ttc ctg agc gaa gcc tcc    2016
Ser Gly Tyr Thr Glu Lys Gln Arg Arg Asp Phe Leu Ser Glu Ala Ser
            660                     665                 670

atc atg ggc cag ttc gac cat ccc aac gtc atc cac ctg gag ggt gtc    2064
Ile Met Gly Gln Phe Asp His Pro Asn Val Ile His Leu Glu Gly Val
            675                     680                 685

gtg acc aag agc aca cct gtg atg atc atc acc gag ttc atg gag aat    2112
Val Thr Lys Ser Thr Pro Val Met Ile Ile Thr Glu Phe Met Glu Asn
            690                     695                 700

ggc tcc ctg gac tcc ttt ctc cgg caa aac gat ggg cag ttc aca gtc    2160
Gly Ser Leu Asp Ser Phe Leu Arg Gln Asn Asp Gly Gln Phe Thr Val
705                     710                 715                 720

atc cag ctg gtg ggc atg ctt cgg ggc atc gca gct ggc atg aag tac    2208
Ile Gln Leu Val Gly Met Leu Arg Gly Ile Ala Ala Gly Met Lys Tyr
            725                     730                 735

ctg gca gac atg aac tat gtt cac cgt gac ctg gct gcc cgc aac atc    2256
Leu Ala Asp Met Asn Tyr Val His Arg Asp Leu Ala Ala Arg Asn Ile
            740                     745                 750

ctc gtc aac agc aac ctg gtc tgc aag gtg tcg gac ttt ggg ctc tca    2304
Leu Val Asn Ser Asn Leu Val Cys Lys Val Ser Asp Phe Gly Leu Ser
            755                     760                 765

cgc ttt cta gag gac gat acc tca gac ccc acc tac acc agt gcc ctg    2352
Arg Phe Leu Glu Asp Asp Thr Ser Asp Pro Thr Tyr Thr Ser Ala Leu
            770                     775                 780

ggc gga aag atc ccc atc cgc tgg aca gcc ccg gaa gcc atc cag tac    2400
Gly Gly Lys Ile Pro Ile Arg Trp Thr Ala Pro Glu Ala Ile Gln Tyr
785                     790                 795                 800

cgg aag ttc acc tcg gcc agt gat gtg tgg agc tac ggc att gtc atg    2448
Arg Lys Phe Thr Ser Ala Ser Asp Val Trp Ser Tyr Gly Ile Val Met
            805                     810                 815
```

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tgg gag gtg atg tcc tat ggg gag cgg ccc tac tgg gac atg acc aac   2496
Trp Glu Val Met Ser Tyr Gly Glu Arg Pro Tyr Trp Asp Met Thr Asn
        820                 825                 830

cag gat gta atc aat gcc att gag cag gac tat cgg ctg cca ccg ccc   2544
Gln Asp Val Ile Asn Ala Ile Glu Gln Asp Tyr Arg Leu Pro Pro Pro
        835                 840                 845

atg gac tgc ccg agc gcc ctg cac caa ctc atg ctg gac tgt tgg cag   2592
Met Asp Cys Pro Ser Ala Leu His Gln Leu Met Leu Asp Cys Trp Gln
        850                 855                 860

aag gac cgc aac cac cgg ccc aag ttc ggc caa att gtc aac acg cta   2640
Lys Asp Arg Asn His Arg Pro Lys Phe Gly Gln Ile Val Asn Thr Leu
865                 870                 875                 880

gac aag atg atc cgc aat ccc aac agc ctc aaa gcc atg gcg ccc ctc   2688
Asp Lys Met Ile Arg Asn Pro Asn Ser Leu Lys Ala Met Ala Pro Leu
                885                 890                 895

tcc tct ggc atc aac ctg ccg ctg ctg gac cgc acg atc ccc gac tac   2736
Ser Ser Gly Ile Asn Leu Pro Leu Leu Asp Arg Thr Ile Pro Asp Tyr
                900                 905                 910

acc agc ttt aac acg gtg gac gag tgg ctg gag gcc atc aag atg ggg   2784
Thr Ser Phe Asn Thr Val Asp Glu Trp Leu Glu Ala Ile Lys Met Gly
                915                 920                 925

cag tac aag gag agc ttc gcc aat gcc ggc ttc acc tcc ttt gac gtc   2832
Gln Tyr Lys Glu Ser Phe Ala Asn Ala Gly Phe Thr Ser Phe Asp Val
        930                 935                 940

gtg tct cag atg atg atg gag gac att ctc cgg gtt ggg gtc act ttg   2880
Val Ser Gln Met Met Met Glu Asp Ile Leu Arg Val Gly Val Thr Leu
945                 950                 955                 960

gct ggc cac cag aaa aaa atc ctg aac agt atc cag gtg atg cgg gcg   2928
Ala Gly His Gln Lys Lys Ile Leu Asn Ser Ile Gln Val Met Arg Ala
                965                 970                 975

cag atg aac cag att cag tct gtg gag ggc cag cca ctc gcc agg agg   2976
Gln Met Asn Gln Ile Gln Ser Val Glu Gly Gln Pro Leu Ala Arg Arg
                980                 985                 990

cca cgg gcc acg gga aga acc aag cgg tgc cag cca cga gac gtc acc   3024
Pro Arg Ala Thr Gly Arg Thr Lys Arg Cys Gln Pro Arg Asp Val Thr
            995                 1000                1005

aag aaa aca tgc aac tca aac gac gga aaa aaa aag gga atg gga aaa   3072
Lys Lys Thr Cys Asn Ser Asn Asp Gly Lys Lys Lys Gly Met Gly Lys
        1010                1015                1020

aag aaa aca gat cct ggg agg ggg cgg gaa ata caa gga ata ttt ttt   3120
Lys Lys Thr Asp Pro Gly Arg Gly Arg Glu Ile Gln Gly Ile Phe Phe
1025                1030                1035                1040

aaa gag gat tct cat aag gaa agc aat gac tgt tct tgc ggg gga taa   3168
Lys Glu Asp Ser His Lys Glu Ser Asn Asp Cys Ser Cys Gly Gly  *
                1045                1050                1055

aaaagggctt gggagattca tgcgatgtgt ccaatcggag acaaaagcag tttctctcca 3228
actccctctg ggaaggtgac ctggccagag ccaagaaaca ctttcagaaa aacaaatgtg 3288
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14

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aaggggagag acaggggcca cccttggctc ctgtccctgc tgctcctcta ggcctcactc 3348
aacaaccaag cgcctggagg acgggacaga tggacagaca gccaccctga gaacccctct 3408
gggaaaatct attcctgcca ccactgggca aacagaagaa tttttctgtc tttggagagt 3468
attttagaaa ctccaatgaa agacactgtt tctcctgttg gctcacaggg ctgaaagggg 3528
cttttgtcct cctgggtcag ggagaacgcg gggaccccag aaaggtcagc cttcctgagg 3588
atgggcaacc cccaggtctg cagctccagg tacatatcac gcgcacagcc tggcagcctg 3648
gccctcctgg tgcccactcc cgccagcccc tgcctcgagg actgatactg cagtgactgc 3708
cgtcagctcc gactgccgct gagaagggtt gatcctgcat ctgggtttgt ttacagcaat 3768
tcctggactc gggggtattt tggtcacagg gtggttttgg tttaggggt ttgtttgttg 3828
ggttgttttt tgttttttgg ttttttttaa tgacaatgaa gtgacacttt gacatttcca 3888
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaa 3924
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<210> 8
<211> 1055
<212> PRT
<213> Homo Sapiens

<400> 8
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                20                  25                  30
Leu Gly Trp Met Val His Pro Pro Ser Gly Trp Glu Glu Val Ser Gly
            35                  40                  45
Tyr Asp Glu Asn Met Asn Thr Ile Arg Thr Tyr Gln Val Cys Asn Val
    50                  55                  60
Phe Glu Ser Ser Gln Asn Asn Trp Leu Arg Thr Lys Phe Ile Arg Arg
65                  70                  75                  80
Arg Gly Ala His Arg Ile His Val Glu Met Lys Phe Ser Val Arg Asp
                85                  90                  95
Cys Ser Ser Ile Pro Ser Val Pro Gly Ser Cys Lys Glu Thr Phe Asn
            100                 105                 110
Leu Tyr Tyr Tyr Glu Ala Asp Phe Asp Ser Ala Thr Lys Thr Phe Pro
        115                 120                 125
Asn Trp Met Glu Asn Pro Trp Val Lys Val Asp Thr Ile Ala Ala Asp
    130                 135                 140
Glu Ser Phe Ser Gln Val Asp Leu Gly Gly Arg Val Met Lys Ile Asn
145                 150                 155                 160
Thr Glu Val Arg Ser Phe Gly Pro Val Ser Arg Ser Gly Phe Tyr Leu
                165                 170                 175
Ala Phe Gln Asp Tyr Gly Gly Cys Met Ser Leu Ile Ala Val Arg Val
            180                 185                 190
Phe Tyr Arg Lys Cys Pro Arg Ile Ile Gln Asn Gly Ala Ile Phe Gln
        195                 200                 205
Glu Thr Leu Ser Gly Ala Glu Ser Thr Ser Leu Val Ala Ala Arg Gly
    210                 215                 220
Ser Cys Ile Ala Asn Ala Glu Glu Val Asp Val Pro Ile Lys Leu Tyr
225                 230                 235                 240
Cys Asn Gly Asp Gly Glu Trp Leu Val Pro Ile Gly Arg Cys Met Cys
            245                 250                 255
Lys Ala Gly Phe Glu Ala Val Glu Asn Gly Thr Val Cys Arg Gly Cys
            260                 265                 270
Pro Ser Gly Thr Phe Lys Ala Asn Gln Gly Asp Glu Ala Cys Thr His
            275                 280                 285
Cys Pro Ile Asn Ser Arg Thr Thr Ser Glu Gly Ala Thr Asn Cys Val
        290                 295                 300
Cys Arg Asn Gly Tyr Tyr Arg Ala Asp Leu Asp Pro Leu Asp Met Pro
305                 310                 315                 320
Cys Thr Thr Ile Pro Ser Ala Pro Gln Ala Val Ile Ser Ser Val Asn
            325                 330                 335
Glu Thr Ser Leu Met Leu Glu Trp Thr Pro Pro Arg Asp Ser Gly Gly
            340                 345                 350
```

15

```
Arg Glu Asp Leu Val Tyr Asn Ile Ile Cys Lys Ser Cys Gly Ser Gly
        355                 360             365
Arg Gly Ala Cys Thr Arg Cys Gly Asp Asn Val Gln Tyr Ala Pro Arg
    370             375                 380
Gln Leu Gly Leu Thr Glu Pro Arg Ile Tyr Ile Ser Asp Leu Leu Ala
385             390             395                 400
His Thr Gln Tyr Thr Phe Glu Ile Gln Ala Val Asn Gly Val Thr Asp
                405             410                 415
Gln Ser Pro Phe Ser Pro Gln Phe Ala Ser Val Asn Ile Thr Thr Asn
            420             425             430
Gln Ala Ala Pro Ser Ala Val Ser Ile Met His Gln Val Ser Arg Thr
        435             440                 445
Val Asp Ser Ile Thr Leu Ser Trp Ser Gln Pro Asp Gln Pro Asn Gly
450             455                 460
Val Ile Leu Asp Tyr Glu Leu Gln Tyr Tyr Glu Lys Glu Leu Ser Glu
465             470             475                 480
Tyr Asn Ala Thr Ala Ile Lys Ser Pro Thr Asn Thr Val Thr Val Gln
            485             490                 495
Gly Leu Lys Ala Gly Ala Ile Tyr Val Phe Gln Val Arg Ala Arg Thr
        500             505             510
Val Ala Gly Tyr Gly Arg Tyr Ser Gly Lys Met Tyr Phe Gln Thr Met
    515             520             525
Thr Glu Ala Glu Tyr Gln Thr Ser Ile Gln Glu Lys Leu Pro Leu Ile
    530             535             540
Ile Gly Ser Ser Ala Ala Gly Leu Val Phe Leu Ile Ala Val Val Val
545             550             555                 560
Ile Ala Ile Val Cys Asn Arg Arg Gly Phe Glu Arg Ala Asp Ser Glu
            565             570                 575
Tyr Thr Asp Lys Leu Gln His Tyr Thr Ser Gly His Met Thr Pro Gly
            580             585             590
Met Lys Ile Tyr Ile Asp Pro Phe Thr Tyr Glu Asp Pro Asn Glu Ala
    595             600             605
Val Arg Glu Phe Ala Lys Glu Ile Asp Ile Ser Cys Val Lys Ile Glu
    610             615             620
Gln Val Ile Gly Ala Gly Glu Phe Gly Glu Val Cys Ser Gly His Leu
625             630             635                 640
Lys Leu Pro Gly Lys Arg Glu Ile Phe Val Ala Ile Lys Thr Leu Lys
            645             650                 655
Ser Gly Tyr Thr Glu Lys Gln Arg Arg Asp Phe Leu Ser Glu Ala Ser
            660             665             670
Ile Met Gly Gln Phe Asp His Pro Asn Val Ile His Leu Glu Gly Val
    675             680             685
Val Thr Lys Ser Thr Pro Val Met Ile Ile Thr Glu Phe Met Glu Asn
    690             695             700
Gly Ser Leu Asp Ser Phe Leu Arg Gln Asn Asp Gly Gln Phe Thr Val
705             710             715                 720
Ile Gln Leu Val Gly Met Leu Arg Gly Ile Ala Ala Gly Met Lys Tyr
            725             730             735
Leu Ala Asp Met Asn Tyr Val His Arg Asp Leu Ala Ala Arg Asn Ile
            740             745             750
Leu Val Asn Ser Asn Leu Val Cys Lys Val Ser Asp Phe Gly Leu Ser
    755             760             765
Arg Phe Leu Glu Asp Asp Thr Ser Asp Pro Thr Tyr Thr Ser Ala Leu
    770             775             780
Gly Gly Lys Ile Pro Ile Arg Trp Thr Ala Pro Glu Ala Ile Gln Tyr
785             790             795                 800
Arg Lys Phe Thr Ser Ala Ser Asp Val Trp Ser Tyr Gly Ile Val Met
            805             810             815
Trp Glu Val Met Ser Tyr Gly Glu Arg Pro Tyr Trp Asp Met Thr Asn
            820             825             830
Gln Asp Val Ile Asn Ala Ile Glu Gln Asp Tyr Arg Leu Pro Pro Pro
        835             840             845
```

16

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Met Asp Cys Pro Ser Ala Leu His Gln Leu Met Leu Asp Cys Trp Gln
    850             855             860
Lys Asp Arg Asn His Arg Pro Lys Phe Gly Gln Ile Val Asn Thr Leu
865             870             875             880
Asp Lys Met Ile Arg Asn Pro Asn Ser Leu Lys Ala Met Ala Pro Leu
            885             890             895
Ser Ser Gly Ile Asn Leu Pro Leu Leu Asp Arg Thr Ile Pro Asp Tyr
            900             905             910
Thr Ser Phe Asn Thr Val Asp Glu Trp Leu Glu Ala Ile Lys Met Gly
        915             920             925
Gln Tyr Lys Glu Ser Phe Ala Asn Ala Gly Phe Thr Ser Phe Asp Val
    930             935             940
Val Ser Gln Met Met Met Glu Asp Ile Leu Arg Val Gly Val Thr Leu
945             950             955             960
Ala Gly His Gln Lys Lys Ile Leu Asn Ser Ile Gln Val Met Arg Ala
            965             970             975
Gln Met Asn Gln Ile Gln Ser Val Glu Gly Gln Pro Leu Ala Arg Arg
            980             985             990
Pro Arg Ala Thr Gly Arg Thr Lys Arg Cys Gln Pro Arg Asp Val Thr
        995             1000            1005
Lys Lys Thr Cys Asn Ser Asn Asp Gly Lys Lys Lys Gly Met Gly Lys
    1010            1015            1020
Lys Lys Thr Asp Pro Gly Arg Gly Arg Glu Ile Gln Gly Ile Phe Phe
1025            1030            1035            1040
Lys Glu Asp Ser His Lys Glu Ser Asn Asp Cys Ser Cys Gly Gly
            1045            1050            1055


<210> 9
<211> 4234
<212> DNA
<213> Homo Sapiens

<220>
<221> CDS
<222> (863)...(2452)

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aagcttactg gtgaggcaag tgtgcgtcta tttccatggc gccctggctc gcggcagccc 60
ctggctgggc gaggggtgtg atgtgggagt ggggtgggag ggggcagcag gcggggcctg 120
ccacgtcact tggagagtgt gtgttgggaa ggaagggcag agcggagagc cgagccgctg 180
cagctgcggc ggcggcagcg aagccttgag ccgtggggag gtgggtcccc ggctcgggcg 240
ccggggcagc cccgggcctc tgcgaggcct gcggcgcggc tcctagggag gaggtggcgg 300
ctgtggcggc cggaaccgcg accttggccg gacccagccc cgcggtggac gcagggcgga 360
ggccgagccc cgcaggagtc tttgccgagc cggaggaggc gcatctggcg cttcggtacc 420
agcggcagcc ggggtccgg agcggctgga ggagcgcagt ggagaactgg gaagagctag 480
cccggctgga gggcggacct ctgcgtccgg agccggggt ctcaaggcac cgctggggc 540
gaagcacggc gtctttcgg gcagccagtt tcacacgcgc ctgtgtgccg gttccgggca 600
tcccagtaag ctctagcacc cgggcgcggg taacgggaag cgcagaacca aatccccagc 660
gcccaggtca cctcccaga cccagccttg cagggaccag ggctttaggg ctcacggacc 720
caacggccag gtcagaccgc gaaccgggag agcgcggccc caccctaaag agggcgcacg 780
ggagctgggg agcgggtgcc gcgctccaga gattgtgtcg tgggcgccgt cctagtggcg 840
gggagcgcac ctccgagggg gc atg aga tcg gag aaa tcc ctt acg ctg gcg 892
                        Met Arg Ser Glu Lys Ser Leu Thr Leu Ala
                         1               5                   10


gcg ccg ggg gag gtc cgt ggg ccg gag ggg gag caa cag gat gcg gga 940
Ala Pro Gly Glu Val Arg Gly Pro Glu Gly Glu Gln Gln Asp Ala Gly
                15              20              25


gac ttc ccg gag gcc ggc ggg ggc ggg ggc tgc tgt agt agc gag cgg 988
Asp Phe Pro Glu Ala Gly Gly Gly Gly Gly Cys Cys Ser Ser Glu Arg
```

17

```
                30                          35                          40

ctg gtg atc aat atc tcc ggg ctg cgc ttt gag aca caa ttg cgc acc    1036
Leu Val Ile Asn Ile Ser Gly Leu Arg Phe Glu Thr Gln Leu Arg Thr
            45                      50                      55

ctg tcg ctg ttt ccg gac acg ctg ctc gga gac cct ggc cgg cga gtc    1084
Leu Ser Leu Phe Pro Asp Thr Leu Leu Gly Asp Pro Gly Arg Arg Val
        60                      65                      70

cgc ttc ttc gac ccc ctg agg aac gag tac ttc ttc gac cgc aac cgg    1132
Arg Phe Phe Asp Pro Leu Arg Asn Glu Tyr Phe Phe Asp Arg Asn Arg
75                      80                      85                  90

ccc agc ttc gac gcc atc ctc tac tac tac cag tct ggg ggc cgc ctg    1180
Pro Ser Phe Asp Ala Ile Leu Tyr Tyr Tyr Gln Ser Gly Gly Arg Leu
                95                      100                     105

cgg agg ccg gtc aac gtg ccc ctg gac att ttc ctg gag gag atc cgc    1228
Arg Arg Pro Val Asn Val Pro Leu Asp Ile Phe Leu Glu Glu Ile Arg
            110                     115                     120

ttc tac cag ctg ggg gac gag gcc ctg gcg gcc ttc cgg gag gac gag    1276
Phe Tyr Gln Leu Gly Asp Glu Ala Leu Ala Ala Phe Arg Glu Asp Glu
            125                     130                     135

ggc tgc ctg ccc gaa ggt ggc gag gac gag aag ccg ctg ccc tcc cag    1324
Gly Cys Leu Pro Glu Gly Gly Glu Asp Glu Lys Pro Leu Pro Ser Gln
        140                     145                     150

ccc ttc cag cgc cag gtg tgg ctg ctc ttt gag tac cca gag agc tct    1372
Pro Phe Gln Arg Gln Val Trp Leu Leu Phe Glu Tyr Pro Glu Ser Ser
155                     160                     165                 170

ggg ccg gcc agg ggc atc gcc atc gtc tcc gtg ttg gtc att ctc atc    1420
Gly Pro Ala Arg Gly Ile Ala Ile Val Ser Val Leu Val Ile Leu Ile
            175                     180                     185

tcc ata gtc atc ttt tgc ctg gag acc tta ccc cag ttc cgt gta gat    1468
Ser Ile Val Ile Phe Cys Leu Glu Thr Leu Pro Gln Phe Arg Val Asp
            190                     195                     200

ggt cga ggt gga aac aat ggt ggt gtg agt cga gtc tcc cca gtt tcc    1516
Gly Arg Gly Gly Asn Asn Gly Gly Val Ser Arg Val Ser Pro Val Ser
            205                     210                     215

agg ggg agt cag gag gaa gag gag gat gaa gac gat tcc tac aca ttt    1564
Arg Gly Ser Gln Glu Glu Glu Glu Asp Glu Asp Asp Ser Tyr Thr Phe
        220                     225                     230

cat cat ggc atc acc cct ggg gaa atg ggg acc ggg ggc tcc tcc tca    1612
His His Gly Ile Thr Pro Gly Glu Met Gly Thr Gly Gly Ser Ser Ser
235                     240                     245                 250

ctc agt act ctt ggg ggc tcc ttc ttt aca gac ccc ttc ttt ctg gtg    1660
Leu Ser Thr Leu Gly Gly Ser Phe Phe Thr Asp Pro Phe Phe Leu Val
            255                     260                     265

gag acg ctg tgc att gtc tgg ttc act ttt gag ctc ctg gtg cgc ttc    1708
Glu Thr Leu Cys Ile Val Trp Phe Thr Phe Glu Leu Leu Val Arg Phe
            270                     275                     280
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tcc gcc tgc cct agc aag ccg gcc ttc ttc cgg aac atc atg aac atc    1756
Ser Ala Cys Pro Ser Lys Pro Ala Phe Phe Arg Asn Ile Met Asn Ile
        285             290             295

att gac ttg gtg gct atc ttc ccc tac ttc atc acc ctg ggc act gag    1804
Ile Asp Leu Val Ala Ile Phe Pro Tyr Phe Ile Thr Leu Gly Thr Glu
        300             305             310

ctg gtg cag cag cag gag cag caa cca gcc agt gga gga ggc ggc cag    1852
Leu Val Gln Gln Gln Glu Gln Gln Pro Ala Ser Gly Gly Gly Gly Gln
315             320             325             330

aat ggg cag cag gcc atg tcc ctg gcc atc ctc cga gtc atc cgc ctg    1900
Asn Gly Gln Gln Ala Met Ser Leu Ala Ile Leu Arg Val Ile Arg Leu
                335             340             345

gtc cgg gtg ttc cgc atc ttc aag ctc tcc cgc cac tcc aag ggg ctg    1948
Val Arg Val Phe Arg Ile Phe Lys Leu Ser Arg His Ser Lys Gly Leu
            350             355             360

cag atc ctg ggc aag acc ttg cag gcc tcc atg agg gag ctg ggg ctg    1996
Gln Ile Leu Gly Lys Thr Leu Gln Ala Ser Met Arg Glu Leu Gly Leu
            365             370             375

ctc atc ttc ttc ctc ttc atc ggg gtc atc ctc ttc tcc agt gcc gtc    2044
Leu Ile Phe Phe Leu Phe Ile Gly Val Ile Leu Phe Ser Ser Ala Val
        380             385             390

tac ttc gca gag gct gac gat gac gat tcg ctt ttt ccc agc atc ccg    2092
Tyr Phe Ala Glu Ala Asp Asp Asp Asp Ser Leu Phe Pro Ser Ile Pro
395             400             405             410

gat gcc ttc tgg tgg gca gtg gtt aca atg acc acg gta ggt tac ggg    2140
Asp Ala Phe Trp Trp Ala Val Val Thr Met Thr Thr Val Gly Tyr Gly
            415             420             425

gac atg tac ccc atg act gtg ggg gga aag atc gtg ggc tcg ctg tgt    2188
Asp Met Tyr Pro Met Thr Val Gly Gly Lys Ile Val Gly Ser Leu Cys
            430             435             440

gcc atc gct ggg gtc ctc acc att gcc ctg cct gtg ccc gtc atc gtc    2236
Ala Ile Ala Gly Val Leu Thr Ile Ala Leu Pro Val Pro Val Ile Val
        445             450             455

tcc aac ttc aac tac ttc tac cac cgg gag acg gag cag gag gag caa    2284
Ser Asn Phe Asn Tyr Phe Tyr His Arg Glu Thr Glu Gln Glu Glu Gln
        460             465             470

ggc cag tat acc cac gtc act tgt ggg cag cct gcg ccg gac ctg agg    2332
Gly Gln Tyr Thr His Val Thr Cys Gly Gln Pro Ala Pro Asp Leu Arg
475             480             485             490

gca act gac aac gga ctt ggc aag cct gac ttc ccc gag gct aac cgg    2380
Ala Thr Asp Asn Gly Leu Gly Lys Pro Asp Phe Pro Glu Ala Asn Arg
                495             500             505

gaa cgg aga ccc agc tac ctt cct aca cca cat cgg gcc tat gca gag    2428
Glu Arg Arg Pro Ser Tyr Leu Pro Thr Pro His Arg Ala Tyr Ala Glu
            510             515             520

aaa aga atg ctc acg gag gtc tga cccatgcagg cagggcctgc aggagggggag  2482
Lys Arg Met Leu Thr Glu Val  *
```

19

```
cactgagcta acagtctctt aggcttcctt ctcatttcca ctactcactc tagcttcagt 2542
tgacttcttg actctctccc ctacacccac tacctggcat ccaggaccaa atacctggac 2602
tatcaacctt gttgcttaat ccctgcagca ttcaaggtta atccatctaa gtgacatttt 2662
tgaaattcca gcggtgccac ccaatcatgc ccagcttctg tcatatgaat gagatataca 2722
tttatatgac agaagctggg catgattggg tggcaccgct ggaatttcaa aaatgtcaag 2782
gaacagcaaa tgtcaacagg atggaaacca gccctatctg agtcttcgct ccctccttag 2842
tgttctttgc tttgggtcat gtgcgtttcc tagcttcagg ccacttggta actggaagaa 2902
gctggaggac agaagcagta ctcaacttgc tgttattcca gtgccctgta acaaccactg 2962
gtcctcctgc agatgaccct tggtagagtc tttatttgca tagcctcaaa ataggttatt 3022
cgttctaaac ttggatggaa ttagagaata caatcaaact ttaccacttg gaggacacgg 3082
ggttagtcca ggaccaaaga ggccaatgga tttttcaaag tgtgccccag cacacagagg 3142
cactggtgtt cggtctacat ttagttctcc ccactctgat cccctgactc tccagcttcc 3202
aggaaggttc cttctcagag ccaaatactc tttgtgcaag tgccttcctg agcagaagaa 3262
ctggagaaag ggaaccacag agccaggagg aatgtctgag cagagtcaag caactggctt 3322
gaccacagtc tgaagcaagg tgccacttaa acagatactg ttttctcaaa ggggcagagg 3382
aatcgtgttg cagatggcag ccttttctcc ttcattttcc ccacattttc tctggccctc 3442
taccttgctt cctgggagtt tgatttagga ttgctgttga aggcttcctc aggcaaactc 3502
cagcttaaag ccctagacag gtaaaagcac acattggatg gcagcatggg tttcttccca 3562
ttttatgggc atgaaatatg tggtttagaa taaggaacaa gcattattcc tttgccaaca 3622
gcctcactct aagaggcttt tttgctgagt caagcaaaca cttgcctgct ctgcccttg 3682
gaggtgcatt tgacctgctc tcactggtaa ggtgacttgg tggcgttccc acttgattta 3742
gccattttct tccattgtga daccactgcc atctatccac ctgcccacct cccctttgt 3802
ttctcagtaa cattgccatt tgttttttgc ctttgataaa ctgtgatgta ctgttctgag 3862
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agctctaaat ctcgatcttg ccataacttt acagggtaac ttgggtccac agtcactctt 4102
tgtgcctcag tttacccacc cattaaatgg gaacattact gtcttccct ccctacctca 4162
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tttgattttt ag                                                     4234
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<210> 10
<211> 529
<212> PRT
<213> Homo Sapiens

<400> 10
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Met Arg Ser Glu Lys Ser Leu Thr Leu Ala Ala Pro Gly Glu Val Arg
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Gly Pro Glu Gly Glu Gln Gln Asp Ala Gly Asp Phe Pro Glu Ala Gly
            20                  25                  30
Gly Gly Gly Gly Cys Cys Ser Ser Glu Arg Leu Val Ile Asn Ile Ser
        35                  40                  45
Gly Leu Arg Phe Glu Thr Gln Leu Arg Thr Leu Ser Leu Phe Pro Asp
    50                  55                  60
Thr Leu Leu Gly Asp Pro Gly Arg Arg Val Arg Phe Phe Asp Pro Leu
65                  70                  75                  80
Arg Asn Glu Tyr Phe Phe Asp Arg Asn Arg Pro Ser Phe Asp Ala Ile
                85                  90                  95
Leu Tyr Tyr Tyr Gln Ser Gly Gly Arg Leu Arg Arg Pro Val Asn Val
                100                 105                 110
Pro Leu Asp Ile Phe Leu Glu Glu Ile Arg Phe Tyr Gln Leu Gly Asp
            115                 120                 125
Glu Ala Leu Ala Ala Phe Arg Glu Asp Glu Gly Cys Leu Pro Glu Gly
        130                 135                 140
Gly Glu Asp Glu Lys Pro Leu Pro Ser Gln Pro Phe Gln Arg Gln Val
145                 150                 155                 160
Trp Leu Leu Phe Glu Tyr Pro Glu Ser Ser Gly Pro Ala Arg Gly Ile
                165                 170                 175
Ala Ile Val Ser Val Leu Val Ile Leu Ile Ser Ile Val Ile Phe Cys
```

```
                 180                     185                      190
Leu Glu Thr Leu Pro Gln Phe Arg Val Asp Gly Arg Gly Gly Asn Asn
             195                 200             205
Gly Gly Val Ser Arg Val Ser Pro Val Ser Arg Gly Ser Gln Glu Glu
         210                 215                 220
Glu Glu Asp Glu Asp Asp Ser Tyr Thr Phe His His Gly Ile Thr Pro
225                     230                 235                 240
Gly Glu Met Gly Thr Gly Gly Ser Ser Ser Leu Ser Thr Leu Gly Gly
             245                     250                 255
Ser Phe Phe Thr Asp Pro Phe Phe Leu Val Glu Thr Leu Cys Ile Val
             260                 265                 270
Trp Phe Thr Phe Glu Leu Leu Val Arg Phe Ser Ala Cys Pro Ser Lys
             275                 280                 285
Pro Ala Phe Phe Arg Asn Ile Met Asn Ile Ile Asp Leu Val Ala Ile
             290                 295                 300
Phe Pro Tyr Phe Ile Thr Leu Gly Thr Glu Leu Val Gln Gln Gln Glu
305                     310                 315                 320
Gln Gln Pro Ala Ser Gly Gly Gly Gly Gln Asn Gly Gln Gln Ala Met
             325                 330                 335
Ser Leu Ala Ile Leu Arg Val Ile Arg Leu Val Arg Val Phe Arg Ile
             340                 345                 350
Phe Lys Leu Ser Arg His Ser Lys Gly Leu Gln Ile Leu Gly Lys Thr
             355                 360                 365
Leu Gln Ala Ser Met Arg Glu Leu Gly Leu Leu Ile Phe Phe Leu Phe
             370                 375                 380
Ile Gly Val Ile Leu Phe Ser Ser Ala Val Tyr Phe Ala Glu Ala Asp
385                     390                 395                 400
Asp Asp Asp Ser Leu Phe Pro Ser Ile Pro Asp Ala Phe Trp Trp Ala
             405                 410                 415
Val Val Thr Met Thr Thr Val Gly Tyr Gly Asp Met Tyr Pro Met Thr
             420                 425                 430
Val Gly Gly Lys Ile Val Gly Ser Leu Cys Ala Ile Ala Gly Val Leu
             435                 440                 445
Thr Ile Ala Leu Pro Val Pro Val Ile Val Ser Asn Phe Asn Tyr Phe
             450                 455                 460
Tyr His Arg Glu Thr Glu Gln Glu Glu Gln Gly Gln Tyr Thr His Val
465                     470                 475                 480
Thr Cys Gly Gln Pro Ala Pro Asp Leu Arg Ala Thr Asp Asn Gly Leu
             485                 490                 495
Gly Lys Pro Asp Phe Pro Glu Ala Asn Arg Glu Arg Arg Pro Ser Tyr
             500                 505                 510
Leu Pro Thr Pro His Arg Ala Tyr Ala Glu Lys Arg Met Leu Thr Glu
             515                 520                 525
Val
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<210>  11
<211>  2747
<212>  DNA
<213>  Homo Sapiens

<220>
<221>  CDS
<222>  (51)...(1310)

<221>  misc_feature
<222>  (1)...(2747)
<223>  n = A,T,C or G

<400>  11
cgaggccgtg ctggaacccg ggcctcagcc gcagccgcag cggggccgac atg acg      56
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                                                                  Met Thr
                                                                   1

aca gct ccc cag gag ccc ccc gcc cgg ccc ctc cag gcg ggc agt gga    104
Thr Ala Pro Gln Glu Pro Pro Ala Arg Pro Leu Gln Ala Gly Ser Gly
            5               10              15

gct ggc ccg gcg cct ggg cgc gcc atg cgc agc acc acg ctc ctg gcc    152
Ala Gly Pro Ala Pro Gly Arg Ala Met Arg Ser Thr Thr Leu Leu Ala
        20              25              30

ctg ctg gcg ctg gtc ttg ctt tac ttg gtg tct ggt gcc ctg gtg ttc    200
Leu Leu Ala Leu Val Leu Leu Tyr Leu Val Ser Gly Ala Leu Val Phe
 35              40              45              50

cgg gcc ctg gag cag ccc cac gag cag cag gcc cag agg gag ctg ggg    248
Arg Ala Leu Glu Gln Pro His Glu Gln Gln Ala Gln Arg Glu Leu Gly
                55              60              65

gag gtc cga gag aag ttc ctg agg gcc cat ccg tgt gtg agc gac cag    296
Glu Val Arg Glu Lys Phe Leu Arg Ala His Pro Cys Val Ser Asp Gln
            70              75              80

gag ctg ggc ctc ctc atc aag gag gtg gct gat gcc ctg gga ggg ggt    344
Glu Leu Gly Leu Leu Ile Lys Glu Val Ala Asp Ala Leu Gly Gly Gly
            85              90              95

gcg gac cca gaa acc aac tcg acc agc aac agc agc cac tca gcc tgg    392
Ala Asp Pro Glu Thr Asn Ser Thr Ser Asn Ser Ser His Ser Ala Trp
    100             105             110

gac ctg ggc agc gcc ttc ttt ttc tca ggg acc atc atc acc acc atc    440
Asp Leu Gly Ser Ala Phe Phe Phe Ser Gly Thr Ile Ile Thr Thr Ile
115             120             125             130

ggc tat ggc aat gtg gcc ctg cgc aca gat gcc ggg cgc ctc ttc tgc    488
Gly Tyr Gly Asn Val Ala Leu Arg Thr Asp Ala Gly Arg Leu Phe Cys
            135             140             145

atc ttt tat gcg ctg gtg ggg att ccg ctg ttt ggg atc cta ctg gca    536
Ile Phe Tyr Ala Leu Val Gly Ile Pro Leu Phe Gly Ile Leu Leu Ala
            150             155             160

ggg gtc ggg gac cgg ctg ggc tcc tcc ctg cgc cat ggc atc ggt cac    584
Gly Val Gly Asp Arg Leu Gly Ser Ser Leu Arg His Gly Ile Gly His
            165             170             175

att gaa gcc atc ttc ttg aag tgg cac gtg cca ccg gag cta gta aga    632
Ile Glu Ala Ile Phe Leu Lys Trp His Val Pro Pro Glu Leu Val Arg
    180             185             190

gtg ctg tcg gcg atg ctt ttc ctg ctg atc ggc tgc ctg ctc ttt gtc    680
Val Leu Ser Ala Met Leu Phe Leu Leu Ile Gly Cys Leu Leu Phe Val
195             200             205             210

ctc acg ccc acg ttc gtg ttc tgc tat atg gag gac tgg agc aag ctg    728
Leu Thr Pro Thr Phe Val Phe Cys Tyr Met Glu Asp Trp Ser Lys Leu
            215             220             225

gag gcc atc tac ttt gtc ata gtg acg ctt acc acc gtg ggc ttt ggc    776
Glu Ala Ile Tyr Phe Val Ile Val Thr Leu Thr Thr Val Gly Phe Gly
            230             235             240
```

22

```
gac tat gtg gcc ggc gcg gac ccc agg cag gac tcc ccg gcc tat cag    824
Asp Tyr Val Ala Gly Ala Asp Pro Arg Gln Asp Ser Pro Ala Tyr Gln
        245                 250                 255

ccg ctg gtg tgg ttc tgg atc ctg ctc ggc ctg gct tac ttc gcc tca    872
Pro Leu Val Trp Phe Trp Ile Leu Leu Gly Leu Ala Tyr Phe Ala Ser
        260                 265                 270

gtg ctc acc acc atc ggg aac tgg ctg cga gta gtg tcc cgc cgc act    920
Val Leu Thr Thr Ile Gly Asn Trp Leu Arg Val Val Ser Arg Arg Thr
275                 280                 285                 290

cgg gca gag atg ggc ggc ctc acg gct cag gct gcc agc tgg act ggc    968
Arg Ala Glu Met Gly Gly Leu Thr Ala Gln Ala Ala Ser Trp Thr Gly
                295                 300                 305

aca gtg aca gcg cgc gtg acc cag cga gcc ggg ccc gcc gcc ccg ccg   1016
Thr Val Thr Ala Arg Val Thr Gln Arg Ala Gly Pro Ala Ala Pro Pro
                310                 315                 320

ccg gag aag gag cag cca ctg ctg cct cca ccg ccc tgt cca gcg cag   1064
Pro Glu Lys Glu Gln Pro Leu Leu Pro Pro Pro Pro Cys Pro Ala Gln
        325                 330                 335

ccg ctg ggc agg ccc cga tcc cct tcg ccc ccc gag aag gct cag ccg   1112
Pro Leu Gly Arg Pro Arg Ser Pro Ser Pro Pro Glu Lys Ala Gln Pro
        340                 345                 350

cct tcc ccg ccc acg gcc tcg gcc ctg gat tat ccc agc gag aac ctg   1160
Pro Ser Pro Pro Thr Ala Ser Ala Leu Asp Tyr Pro Ser Glu Asn Leu
355                 360                 365                 370

gcc ttc atc gac gag tcc tcg gat acg cag agc gag cgc ggc tgc ccg   1208
Ala Phe Ile Asp Glu Ser Ser Asp Thr Gln Ser Glu Arg Gly Cys Pro
                375                 380                 385

ctg ccc cgc gcg ccg aga ggt cgc cgc cgc cca aat ccc ccc agg aag   1256
Leu Pro Arg Ala Pro Arg Gly Arg Arg Arg Pro Asn Pro Pro Arg Lys
                390                 395                 400

ccc gtg cgg ccc cgc ggc ccc ggg cgt ccc cga gac aaa ggc gtg ccg   1304
Pro Val Arg Pro Arg Gly Pro Gly Arg Pro Arg Asp Lys Gly Val Pro
        405                 410                 415

gtg tag ggatccctgg ccgggcctct caagggcttc gtttctgctc tccccggcat   1360
Val  *


gcctggcttg tttgaccaaa gagccctctt tccacgagac tgaagtctgg ggaggaggct   1420
acagttgcct ctccgcctcc tccctggccc cggcccttcc ctcacttcca tccatctcta   1480
gacccccca aggctttctg tgtcgctgcc ccgggcgggt gtatccctca cagcacctca   1540
cgactgtgcc tcaaagcctg catcaataaa tgaaaacggt ctgcaccgct gcgggcgtga   1600
cgctcccgga cgcgagtggg tgtggaattg ctttcctcgg gccaccgtgg gggcacctct   1660
ggcctcccgt gaccccagg ccgagggtcc ccccgggcac ccaggtcggt caagtctcgg   1720
ccctctcagg cccgcgtctc tgcctggagg agactgtgta gggtccggcg tggggatcag   1780
ccgggatggg ctgcgcgtct ccagcctctg cacacacatt ggcgggtggg gtgcagggag   1840
ggagaggcag gggagagaga atggcatctc gcgtggaggg ctgtcgtttg aactctccca   1900
gcgcgagaga ccctgccccg ccccccttcct ggagcgttga ctcccttctc gtctcgaggc   1960
ctgtggcgtc tgggtccgtt ggggcagaac catggaggaa aagccttcga aagtgtcgct   2020
caagtcttcc gaccgccaag gctcggacga ggagagcgtg catagcgaca ctcgggacct   2080
gtggaccacg accacgctgt cccaggcaca gctgaacatg ccgctgtccg aggtctgcga   2140
```

23

```
gggcttcgac gatgagggcc gcaacattag caagacccgc gggtggcaca gcccggggcg 2200
gggctcgttg gacgagggt acaaggccag ccacaagccg gaggaactgg acgagcacgc 2260
gctggtggag ctggagttgc accgcggcag ctccatggaa atcaatctgg gggagaagga 2320
cactgcatcc cagatcgagg ccgaaaagtc ttcctcaatg tcatcactca atattgcgaa 2380
gcacatgccc catcgagcct actgggcaga gcagcagagc aggctgccac tgcccctgat 2440
ggaactcatg gagaatgaag ctctggaaat cctcaccaaa gccctccggn gctaccagtt 2500
agggatcggc agggaccact tcctgactaa ggagctgcag cgatacatcg aagggctcaa 2560
gaagcgccgg agcaagaggc tgtacgtgaa ttaaaaacgc caccttgggc tcgagcagcg 2620
acccgaacca gccccgtgcc agcccggtcc ccagacccaa gcctgacccc atccgagtgg 2680
aatttgagtc ctaaagaaat aaaagagtgg tgcttaaaaa aaaaaaaaa aaaaaaaaa 2740
aaaaaaa                                                         2747
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<210> 12
<211> 419
<212> PRT
<213> Homo Sapiens

<400> 12

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Met Thr Thr Ala Pro Gln Glu Pro Pro Ala Arg Pro Leu Gln Ala Gly
 1               5                   10                  15
Ser Gly Ala Gly Pro Ala Pro Gly Arg Ala Met Arg Ser Thr Thr Leu
            20                  25                  30
Leu Ala Leu Leu Ala Leu Val Leu Leu Tyr Leu Val Ser Gly Ala Leu
        35                  40                  45
Val Phe Arg Ala Leu Glu Gln Pro His Glu Gln Gln Ala Gln Arg Glu
    50                  55                  60
Leu Gly Glu Val Arg Glu Lys Phe Leu Arg Ala His Pro Cys Val Ser
65                  70                  75                  80
Asp Gln Glu Leu Gly Leu Leu Ile Lys Glu Val Ala Asp Ala Leu Gly
            85                  90                  95
Gly Gly Ala Asp Pro Glu Thr Asn Ser Thr Ser Asn Ser Ser His Ser
            100                 105                 110
Ala Trp Asp Leu Gly Ser Ala Phe Phe Phe Ser Gly Thr Ile Ile Thr
        115                 120                 125
Thr Ile Gly Tyr Gly Asn Val Ala Leu Arg Thr Asp Ala Gly Arg Leu
    130                 135                 140
Phe Cys Ile Phe Tyr Ala Leu Val Gly Ile Pro Leu Phe Gly Ile Leu
145                 150                 155                 160
Leu Ala Gly Val Gly Asp Arg Leu Gly Ser Ser Leu Arg His Gly Ile
            165                 170                 175
Gly His Ile Glu Ala Ile Phe Leu Lys Trp His Val Pro Pro Glu Leu
            180                 185                 190
Val Arg Val Leu Ser Ala Met Leu Phe Leu Leu Ile Gly Cys Leu Leu
            195                 200                 205
Phe Val Leu Thr Pro Thr Phe Val Phe Cys Tyr Met Glu Asp Trp Ser
    210                 215                 220
Lys Leu Glu Ala Ile Tyr Phe Val Ile Val Thr Leu Thr Thr Val Gly
225                 230                 235                 240
Phe Gly Asp Tyr Val Ala Gly Ala Asp Pro Arg Gln Asp Ser Pro Ala
            245                 250                 255
Tyr Gln Pro Leu Val Trp Phe Trp Ile Leu Leu Gly Leu Ala Tyr Phe
            260                 265                 270
Ala Ser Val Leu Thr Thr Ile Gly Asn Trp Leu Arg Val Val Ser Arg
        275                 280                 285
Arg Thr Arg Ala Glu Met Gly Gly Leu Thr Ala Gln Ala Ala Ser Trp
    290                 295                 300
Thr Gly Thr Val Thr Ala Arg Val Thr Gln Arg Ala Gly Pro Ala Ala
305                 310                 315                 320
Pro Pro Pro Glu Lys Glu Gln Pro Leu Leu Pro Pro Pro Cys Pro
            325                 330                 335
Ala Gln Pro Leu Gly Arg Pro Arg Ser Pro Ser Pro Pro Glu Lys Ala
            340                 345                 350
```

24

```
Gln Pro Pro Ser Pro Pro Thr Ala Ser Ala Leu Asp Tyr Pro Ser Glu
        355             360             365
Asn Leu Ala Phe Ile Asp Glu Ser Ser Asp Thr Gln Ser Glu Arg Gly
    370     ·           375             380
Cys Pro Leu Pro Arg Ala Pro Arg Gly Arg Arg Arg Pro Asn Pro Pro
385             390             395             400
Arg Lys Pro Val Arg Pro Arg Gly Pro Gly Arg Pro Arg Asp Lys Gly
            405             410             415
Val Pro Val


<210> 13
<211> 3985
<212> DNA
<213> Homo Sapiens

<220>
<221> CDS
<222> (359)...(3610)

<400> 13
gcgtccgcgg acgcgtgggc cgagcgaagc ccgagcggaa gcccacccgc agccgacacg 60
cgagccgctg tcgcggaggg aggtgctgag agcgccgcgg ctgcggggcc tggagcccgg 120
gatttgtggg cggcgagggt gcgaggggtc gcgcgccatg ctccgggtcc cgacggcgcg 180
gacgcccct cgcgcgcccg cggccggcgc gacccgagat cccggtctgg gcattgcccc 240
ccgacggctg cgctagggag cgcggggccc ggcggggggc ggccgagctg ggcgccctcc 300
cccggcgcgg agtccccgca ccccggaggg atggggccgg cagccgcggg cgcctaag 358
atg ccg gcc atg cgg ggc ctc ctg gcg ccg cag aac acc ttc ctg gac 406
Met Pro Ala Met Arg Gly Leu Leu Ala Pro Gln Asn Thr Phe Leu Asp
1               5                   10                  15

acc atc gct acg cgc ttc gac ggc acg cac agt aac ttc gtg ctg ggc 454
Thr Ile Ala Thr Arg Phe Asp Gly Thr His Ser Asn Phe Val Leu Gly
            20                  25                  30

aac gcc cag gtg gcg ggg ctc ttc ccc gtg gtc tac tgc tct gat ggc 502
Asn Ala Gln Val Ala Gly Leu Phe Pro Val Val Tyr Cys Ser Asp Gly
        35                  40                  45

ttc tgt gac ctc acg ggc ttc tcc cgg gct gag gtc atg cag cgg ggc 550
Phe Cys Asp Leu Thr Gly Phe Ser Arg Ala Glu Val Met Gln Arg Gly
    50                  55                  60

tgt gcc tgc tcc ttc ctt tat ggg cca gac acc agt gag ctc gtc cgc 598
Cys Ala Cys Ser Phe Leu Tyr Gly Pro Asp Thr Ser Glu Leu Val Arg
65                  70                  75                  80

caa cag atc cgc aag gcc ctg gac gag cac aag gag ttc aag gct gag 646
Gln Gln Ile Arg Lys Ala Leu Asp Glu His Lys Glu Phe Lys Ala Glu
                85                  90                  95

ctg atc ctg tac cgg aag agc ggg ctc ccg ttc tgg tgt ctc ctg gat 694
Leu Ile Leu Tyr Arg Lys Ser Gly Leu Pro Phe Trp Cys Leu Leu Asp
            100                 105                 110

gtg ata ccc ata aag aat gag aaa ggg gag gtg gct ctc ttc cta gtc 742
Val Ile Pro Ile Lys Asn Glu Lys Gly Glu Val Ala Leu Phe Leu Val
            115                 120                 125

tct cac aag gac atc agc gaa acc aag aac cga ggg ggc ccy gac aga 790
Ser His Lys Asp Ile Ser Glu Thr Lys Asn Arg Gly Gly Xaa Asp Arg
```

25

```
tgg aag gag aca ggt ggt ggc cgg cgc cga tat ggc cgg gca cga tcc    838
Trp Lys Glu Thr Gly Gly Gly Arg Arg Arg Tyr Gly Arg Ala Arg Ser
145             150             155             160

aaa ggc ttc aat gcc aac cgg cgg cgg agc cgg gcc gtg ctc tac cac    886
Lys Gly Phe Asn Ala Asn Arg Arg Arg Ser Arg Ala Val Leu Tyr His
            165             170             175

ctg tcc ggg cac ctg cag aag cag ccc aag ggc aag cac aag ctc aat    934
Leu Ser Gly His Leu Gln Lys Gln Pro Lys Gly Lys His Lys Leu Asn
            180             185             190

aag ggg gtg ttt ggg gag aaa cca aac ttg cct gag tac aaa gta gcc    982
Lys Gly Val Phe Gly Glu Lys Pro Asn Leu Pro Glu Tyr Lys Val Ala
            195             200             205

gcc atc cgg aag tcg ccc ttc atc ctg ttg cac tgt ggg gca ctg aga   1030
Ala Ile Arg Lys Ser Pro Phe Ile Leu Leu His Cys Gly Ala Leu Arg
    210             215             220

gcc acc tgg gat ggc ttc atc ctg ctc gcc aca ctc tat gtg gct gtc   1078
Ala Thr Trp Asp Gly Phe Ile Leu Leu Ala Thr Leu Tyr Val Ala Val
225             230             235             240

act gtg ccc tac agc gtg tgt gtg agc aca gca cgg gag ccc agt gcc   1126
Thr Val Pro Tyr Ser Val Cys Val Ser Thr Ala Arg Glu Pro Ser Ala
            245             250             255

gcc cgc ggc ccg ccc agc gtc tgt gac ctg gcc gtg gag gtc ctc ttc   1174
Ala Arg Gly Pro Pro Ser Val Cys Asp Leu Ala Val Glu Val Leu Phe
            260             265             270

atc ctt gac att gtg ctg aat ttc cgt acc aca ttc gtg tcc aag tcg   1222
Ile Leu Asp Ile Val Leu Asn Phe Arg Thr Thr Phe Val Ser Lys Ser
            275             280             285

ggc cag gtg gtg ttt gcc cca aag tcc att tgc ctc cac tac gtc acc   1270
Gly Gln Val Val Phe Ala Pro Lys Ser Ile Cys Leu His Tyr Val Thr
    290             295             300

acc tgg ttc ctg ctg gat gtc atc gca gcg ctg ccc ttt gac ctg ctg   1318
Thr Trp Phe Leu Leu Asp Val Ile Ala Ala Leu Pro Phe Asp Leu Leu
305             310             315             320

cat gcc ttc aag gtc aac gtg tac ttc ggg gcc cac ctg ctg aag acg   1366
His Ala Phe Lys Val Asn Val Tyr Phe Gly Ala His Leu Leu Lys Thr
            325             330             335

gtg cgc ctg ctg cgc ctg ctg cgc ctg ctt ccg cgg ctg gac cgg tac   1414
Val Arg Leu Leu Arg Leu Leu Arg Leu Leu Pro Arg Leu Asp Arg Tyr
            340             345             350

tcg cag tac agc gcc gtg gtg ctg aca ctg ctc atg gcc gtg ttt gcc   1462
Ser Gln Tyr Ser Ala Val Val Leu Thr Leu Leu Met Ala Val Phe Ala
            355             360             365

ctg ctt gcg cac tgg gtt gcc tgc gtc tgg ttt tac att ggt cag cgg   1510
Leu Leu Ala His Trp Val Ala Cys Val Trp Phe Tyr Ile Gly Gln Arg
    370             375             380
```

```
gag atc gag agc agc gaa tcc gag ctg cct gag att ggc tgg ctg cag     1558
Glu Ile Glu Ser Ser Glu Ser Glu Leu Pro Glu Ile Gly Trp Leu Gln
385                     390                 395                 400

gag ctg gcc cgc cga ctg gag acc ccc tac tac ttg gtg ggc cgg aga     1606
Glu Leu Ala Arg Arg Leu Glu Thr Pro Tyr Tyr Leu Val Gly Arg Arg
                405                 410                 415

cca gcc gga ggg aac agc tct ggc cag agt gac aac tgc agc agc agc     1654
Pro Ala Gly Gly Asn Ser Ser Gly Gln Ser Asp Asn Cys Ser Ser Ser
                420                 425                 430

agc gag gcc aac ggg acg ggg ctg gag ctg cta ggc ggc ccg tcg ctg     1702
Ser Glu Ala Asn Gly Thr Gly Leu Glu Leu Leu Gly Gly Pro Ser Leu
                435                 440                 445

cgc agc gcc tac atc acc tcc ctc tac ttc gca ctc agc agc ctc acc     1750
Arg Ser Ala Tyr Ile Thr Ser Leu Tyr Phe Ala Leu Ser Ser Leu Thr
                450                 455                 460

agc gtg ggc ttc ggc aac gtg tcc gcc aac acg gac act gag aag atc     1798
Ser Val Gly Phe Gly Asn Val Ser Ala Asn Thr Asp Thr Glu Lys Ile
465                     470                 475                 480

ttc tcc atc tgc acc atg ctc atc ggc gcc ctg atg cac gcg gtg gtg     1846
Phe Ser Ile Cys Thr Met Leu Ile Gly Ala Leu Met His Ala Val Val
                485                 490                 495

ttc ggg aac gtg acg gcc atc atc cag cgc atg tac gcc cgc cgc ttt     1894
Phe Gly Asn Val Thr Ala Ile Ile Gln Arg Met Tyr Ala Arg Arg Phe
                500                 505                 510

ttg tac cac agc cgc acg cgc gac ctg cgc gac tac atc cgc atc cac     1942
Leu Tyr His Ser Arg Thr Arg Asp Leu Arg Asp Tyr Ile Arg Ile His
                515                 520                 525

cgt atc ccc aag ccc ctc aag cag cgc atg ctg gag tac ttc cag gcc     1990
Arg Ile Pro Lys Pro Leu Lys Gln Arg Met Leu Glu Tyr Phe Gln Ala
                530                 535                 540

acc tgg gcg gtg aac aat ggc atc gac acc acc gag ctg ctg cag agc     2038
Thr Trp Ala Val Asn Asn Gly Ile Asp Thr Thr Glu Leu Leu Gln Ser
545                     550                 555                 560

ctc cct gac gag ctg cgc gca gac atc gcc atg cac ctg cac aag gag     2086
Leu Pro Asp Glu Leu Arg Ala Asp Ile Ala Met His Leu His Lys Glu
                565                 570                 575

gtc ctg cag ctg ccg ctg ttt gag gca gcc agc cgc ggc tgc ctg cgg     2134
Val Leu Gln Leu Pro Leu Phe Glu Ala Ala Ser Arg Gly Cys Leu Arg
                580                 585                 590

gca ctg tct ctg gcc ctg cgg ccc gcc ttc tgc acg ccg ggc gag tac     2182
Ala Leu Ser Leu Ala Leu Arg Pro Ala Phe Cys Thr Pro Gly Glu Tyr
                595                 600                 605

ctc atc cac caa ggc gat gcc ctg cag gcc ctc tac ttt gtc tgc tct     2230
Leu Ile His Gln Gly Asp Ala Leu Gln Ala Leu Tyr Phe Val Cys Ser
                610                 615                 620

ggc tcc atg gag gtg ctc aag ggt ggc acc gtg ctc gcc atc cta ggg     2278
Gly Ser Met Glu Val Leu Lys Gly Gly Thr Val Leu Ala Ile Leu Gly
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27

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aag ggt gac ctg atc ggc tgt gag ctg ccc cgg agg gag cag gtg gta    2326
Lys Gly Asp Leu Ile Gly Cys Glu Leu Pro Arg Arg Glu Gln Val Val
            645                 650                 655

aag gcc aac gcc gat gtg aag ggg ctg acg tac tgc gtc ctg cag tgt    2374
Lys Ala Asn Ala Asp Val Lys Gly Leu Thr Tyr Cys Val Leu Gln Cys
            660                 665                 670

ctg cag ctg gct ggc ctg cac gac agc ctt gcg ctc tac ccc gag ttt    2422
Leu Gln Leu Ala Gly Leu His Asp Ser Leu Ala Leu Tyr Pro Glu Phe
            675                 680                 685

gcc ccg cgc ttc agc cgt ggc ctc cga ggg gag ctc agc tac aac ctg    2470
Ala Pro Arg Phe Ser Arg Gly Leu Arg Gly Glu Leu Ser Tyr Asn Leu
            690                 695                 700

ggt gct ggg gga ggc tct gca gag gtg gac acc agc tcc ctg agc ggc    2518
Gly Ala Gly Gly Gly Ser Ala Glu Val Asp Thr Ser Ser Leu Ser Gly
705                 710                 715                 720

gac aat acc ctt atg tcc acg ctg gag gag aag gag aca gat ggg gag    2566
Asp Asn Thr Leu Met Ser Thr Leu Glu Glu Lys Glu Thr Asp Gly Glu
            725                 730                 735

cag ggc ccc aca gtc tcc cca gcc cca gct gat gag ccc tcc agc ccc    2614
Gln Gly Pro Thr Val Ser Pro Ala Pro Ala Asp Glu Pro Ser Ser Pro
            740                 745                 750

cta ctg tcc cct ggt tgc acc tcc tca tcc tcg gct gcc aag ctg cta    2662
Leu Leu Ser Pro Gly Cys Thr Ser Ser Ser Ser Ala Ala Lys Leu Leu
            755                 760                 765

tcc cca cgt cga aca gca ccc cgg cct cgt cta ggt ggc aga ggg aga    2710
Ser Pro Arg Arg Thr Ala Pro Arg Pro Arg Leu Gly Gly Arg Gly Arg
            770                 775                 780

cca ggc agg gca ggg gct ttg aag gct gag gct ggc ccc tct gct ccc    2758
Pro Gly Arg Ala Gly Ala Leu Lys Ala Glu Ala Gly Pro Ser Ala Pro
785                 790                 795                 800

cca cgg gcc cta gag ggg cta cgg ctg ccc ccc atg cca tgg aat gtg    2806
Pro Arg Ala Leu Glu Gly Leu Arg Leu Pro Pro Met Pro Trp Asn Val
            805                 810                 815

ccc cca gat ctg agc ccc agg gta gta gat ggc att gaa gac ggc tgt    2854
Pro Pro Asp Leu Ser Pro Arg Val Val Asp Gly Ile Glu Asp Gly Cys
            820                 825                 830

ggc tcg gac cag ccc aag ttc tct ttc cgc atg ggc cag tct ggc ccg    2902
Gly Ser Asp Gln Pro Lys Phe Ser Phe Arg Met Gly Gln Ser Gly Pro
            835                 840                 845

gaa tgt agc agc agc ccc tcc cct gga cca gag agt ggc ctg ctc act    2950
Glu Cys Ser Ser Ser Pro Ser Pro Gly Pro Glu Ser Gly Leu Leu Thr
            850                 855                 860

gtc ccc cat ggg ccc agc gag gca agg aac aca gac aca ctg gac aag    2998
Val Pro His Gly Pro Ser Glu Ala Arg Asn Thr Asp Thr Leu Asp Lys
865                 870                 875                 880
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```
ctt cgg cag gcg gtg atg gag ctg tca gaa cag gtg ctg cag atg cgg    3046
Leu Arg Gln Ala Val Met Glu Leu Ser Glu Gln Val Leu Gln Met Arg
                885                 890                 895

gaa gga cta cag tca ctt cgc cag gtt gtg cag ctt gtc ctg gca ccc    3094
Glu Gly Leu Gln Ser Leu Arg Gln Val Val Gln Leu Val Leu Ala Pro
                900                 905                 910

cat agg gag ggt cca tgc cct cgg gcc tca gga gag ggg cca tgc cca    3142
His Arg Glu Gly Pro Cys Pro Arg Ala Ser Gly Glu Gly Pro Cys Pro
                915                 920                 925

gcc agc acc tcc ggg ctt ctg cag cct ctg tgt gtg gac act ggg gca    3190
Ala Ser Thr Ser Gly Leu Leu Gln Pro Leu Cys Val Asp Thr Gly Ala
                930                 935                 940

tcc tcc tac tgc ctg cag ccc cca gct ggc tct gtc ttg agt ggg act    3238
Ser Ser Tyr Cys Leu Gln Pro Pro Ala Gly Ser Val Leu Ser Gly Thr
945                 950                 955                 960

tgg ccc cac cct cgt ccg ggg cct cct ccc ctc atg gca ccc tgg ccc    3286
Trp Pro His Pro Arg Pro Gly Pro Pro Pro Leu Met Ala Pro Trp Pro
                965                 970                 975

tgg ggt ccc cca gca tct cag agc tcc ccc tgg cct cga gcc aca gct    3334
Trp Gly Pro Pro Ala Ser Gln Ser Ser Pro Trp Pro Arg Ala Thr Ala
                980                 985                 990

ttc tgg acc tcc acc tca gac tca gag ccc cct gcc tca gga gac ctc    3382
Phe Trp Thr Ser Thr Ser Asp Ser Glu Pro Pro Ala Ser Gly Asp Leu
                995                 1000                1005

tgc tct gag ccc agc acc cct gcc tca cct cct cct tct gag gaa ggg    3430
Cys Ser Glu Pro Ser Thr Pro Ala Ser Pro Pro Pro Ser Glu Glu Gly
    1010                1015                1020

gct agg act ggg ccc cca gag cct gtg agc cag gct gag gct acc agc    3478
Ala Arg Thr Gly Pro Pro Glu Pro Val Ser Gln Ala Glu Ala Thr Ser
1025                1030                1035                1040

act gga gag ccc ccg cca gtg tca ggg ggc ctg gcc ttg ccc tgg gac    3526
Thr Gly Glu Pro Pro Pro Val Ser Gly Gly Leu Ala Leu Pro Trp Asp
                1045                1050                1055

ccc cac agc ctg gag atg gtg ctt att ggc tgc cac ggc tct ggc aca    3574
Pro His Ser Leu Glu Met Val Leu Ile Gly Cys His Gly Ser Gly Thr
                1060                1065                1070

gtc cag tgg acc cag gaa gaa ggc aca ggg gtc tga gtaccagccc         3620
Val Gln Trp Thr Gln Glu Glu Gly Thr Gly Val *
                1075                1080

tagaactcag tgttgccagg cgtgctgcca tctgctgttc agcccaacct cagagtgaag  3680
acagggtggc ggccacccca tggactccat gtggcccgct ggctcaggct agggagcctg  3740
gaagcaaagg agggcctggc tcctgactct cagagagggt gggctggagc cctggggcag  3800
gcccctcctc agcctgctcc tccgacctcc cggtctccct ctgcaggctg ggggcagaga  3860
cctgaggaca aggaagggct ttgccatccc ctgcatgtgc ccctgcctct acctgtccca  3920
aattttttata ttaaaaaaaa taataataaa agaaactact ttggaaaaaa aaaaaaaaaa  3980
aaaaa                                                             3985

<210> 14
<211> 1083
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29

<212> PRT
<213> Homo Sapiens

<220>
<221> VARIANT
<222> (1)...(1083)
<223> Xaa = Any Amino Acid

<400> 14
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Thr Ile Ala Thr Arg Phe Asp Gly Thr His Ser Asn Phe Val Leu Gly
            20                  25                  30
Asn Ala Gln Val Ala Gly Leu Phe Pro Val Val Tyr Cys Ser Asp Gly
            35                  40                  45
Phe Cys Asp Leu Thr Gly Phe Ser Arg Ala Glu Val Met Gln Arg Gly
 50                  55                  60
Cys Ala Cys Ser Phe Leu Tyr Gly Pro Asp Thr Ser Glu Leu Val Arg
65                  70                  75                  80
Gln Gln Ile Arg Lys Ala Leu Asp Glu His Lys Glu Phe Lys Ala Glu
            85                  90                  95
Leu Ile Leu Tyr Arg Lys Ser Gly Leu Pro Phe Trp Cys Leu Leu Asp
            100                 105                 110
Val Ile Pro Ile Lys Asn Glu Lys Gly Glu Val Ala Leu Phe Leu Val
            115                 120                 125
Ser His Lys Asp Ile Ser Glu Thr Lys Asn Arg Gly Gly Xaa Asp Arg
    130                 135                 140
Trp Lys Glu Thr Gly Gly Gly Arg Arg Arg Tyr Gly Arg Ala Arg Ser
145                 150                 155                 160
Lys Gly Phe Asn Ala Asn Arg Arg Arg Ser Arg Ala Val Leu Tyr His
            165                 170                 175
Leu Ser Gly His Leu Gln Lys Gln Pro Lys Gly Lys His Lys Leu Asn
            180                 185                 190
Lys Gly Val Phe Gly Glu Lys Pro Asn Leu Pro Glu Tyr Lys Val Ala
            195                 200                 205
Ala Ile Arg Lys Ser Pro Phe Ile Leu Leu His Cys Gly Ala Leu Arg
    210                 215                 220
Ala Thr Trp Asp Gly Phe Ile Leu Leu Ala Thr Leu Tyr Val Ala Val
225                 230                 235                 240
Thr Val Pro Tyr Ser Val Cys Val Ser Thr Ala Arg Glu Pro Ser Ala
            245                 250                 255
Ala Arg Gly Pro Pro Ser Val Cys Asp Leu Ala Val Glu Val Leu Phe
            260                 265                 270
Ile Leu Asp Ile Val Leu Asn Phe Arg Thr Thr Phe Val Ser Lys Ser
            275                 280                 285
Gly Gln Val Val Phe Ala Pro Lys Ser Ile Cys Leu His Tyr Val Thr
    290                 295                 300
Thr Trp Phe Leu Leu Asp Val Ile Ala Ala Leu Pro Phe Asp Leu Leu
305                 310                 315                 320
His Ala Phe Lys Val Asn Val Tyr Phe Gly Ala His Leu Leu Lys Thr
            325                 330                 335
Val Arg Leu Leu Arg Leu Leu Arg Leu Leu Pro Arg Leu Asp Arg Tyr
            340                 345                 350
Ser Gln Tyr Ser Ala Val Val Leu Thr Leu Leu Met Ala Val Phe Ala
    355                 360                 365
Leu Leu Ala His Trp Val Ala Cys Val Trp Phe Tyr Ile Gly Gln Arg
    370                 375                 380
Glu Ile Glu Ser Ser Glu Ser Glu Leu Pro Glu Ile Gly Trp Leu Gln
385                 390                 395                 400
Glu Leu Ala Arg Arg Leu Glu Thr Pro Tyr Tyr Leu Val Gly Arg Arg
            405                 410                 415
Pro Ala Gly Gly Asn Ser Ser Gly Gln Ser Asp Asn Cys Ser Ser Ser
```

30

```
                    420                      425                          430
Ser Glu Ala Asn Gly Thr Gly Leu Glu Leu Leu Gly Gly Pro Ser Leu
        435                      440                      445
Arg Ser Ala Tyr Ile Thr Ser Leu Tyr Phe Ala Leu Ser Ser Leu Thr
    450                      455                      460
Ser Val Gly Phe Gly Asn Val Ser Ala Asn Thr Asp Thr Glu Lys Ile
465                      470                      475                      480
Phe Ser Ile Cys Thr Met Leu Ile Gly Ala Leu Met His Ala Val Val
                485                      490                      495
Phe Gly Asn Val Thr Ala Ile Ile Gln Arg Met Tyr Ala Arg Arg Phe
            500                      505                      510
Leu Tyr His Ser Arg Thr Arg Asp Leu Arg Asp Tyr Ile Arg Ile His
        515                      520                      525
Arg Ile Pro Lys Pro Leu Lys Gln Arg Met Leu Glu Tyr Phe Gln Ala
    530                      535                      540
Thr Trp Ala Val Asn Asn Gly Ile Asp Thr Thr Glu Leu Leu Gln Ser
545                      550                      555                      560
Leu Pro Asp Glu Leu Arg Ala Asp Ile Ala Met His Leu His Lys Glu
                565                      570                      575
Val Leu Gln Leu Pro Leu Phe Glu Ala Ala Ser Arg Gly Cys Leu Arg
            580                      585                      590
Ala Leu Ser Leu Ala Leu Arg Pro Ala Phe Cys Thr Pro Gly Glu Tyr
        595                      600                      605
Leu Ile His Gln Gly Asp Ala Leu Gln Ala Leu Tyr Phe Val Cys Ser
    610                      615                      620
Gly Ser Met Glu Val Leu Lys Gly Gly Thr Val Leu Ala Ile Leu Gly
625                      630                      635                      640
Lys Gly Asp Leu Ile Gly Cys Glu Leu Pro Arg Arg Glu Gln Val Val
                645                      650                      655
Lys Ala Asn Ala Asp Val Lys Gly Leu Thr Tyr Cys Val Leu Gln Cys
            660                      665                      670
Leu Gln Leu Ala Gly Leu His Asp Ser Leu Ala Leu Tyr Pro Glu Phe
        675                      680                      685
Ala Pro Arg Phe Ser Arg Gly Leu Arg Gly Glu Leu Ser Tyr Asn Leu
    690                      695                      700
Gly Ala Gly Gly Gly Ser Ala Glu Val Asp Thr Ser Ser Leu Ser Gly
705                      710                      715                      720
Asp Asn Thr Leu Met Ser Thr Leu Glu Glu Lys Glu Thr Asp Gly Glu
                725                      730                      735
Gln Gly Pro Thr Val Ser Pro Ala Pro Ala Asp Glu Pro Ser Ser Pro
            740                      745                      750
Leu Leu Ser Pro Gly Cys Thr Ser Ser Ser Ser Ala Ala Lys Leu Leu
        755                      760                      765
Ser Pro Arg Arg Thr Ala Pro Arg Pro Arg Leu Gly Gly Arg Gly Arg
    770                      775                      780
Pro Gly Arg Ala Gly Ala Leu Lys Ala Glu Ala Gly Pro Ser Ala Pro
785                      790                      795                      800
Pro Arg Ala Leu Glu Gly Leu Arg Leu Pro Pro Met Pro Trp Asn Val
                805                      810                      815
Pro Pro Asp Leu Ser Pro Arg Val Val Asp Gly Ile Glu Asp Gly Cys
            820                      825                      830
Gly Ser Asp Gln Pro Lys Phe Ser Phe Arg Met Gly Gln Ser Gly Pro
        835                      840                      845
Glu Cys Ser Ser Ser Pro Ser Pro Gly Pro Glu Ser Gly Leu Leu Thr
    850                      855                      860
Val Pro His Gly Pro Ser Glu Ala Arg Asn Thr Asp Thr Leu Asp Lys
865                      870                      875                      880
Leu Arg Gln Ala Val Met Glu Leu Ser Glu Gln Val Leu Gln Met Arg
                885                      890                      895
Glu Gly Leu Gln Ser Leu Arg Gln Val Val Gln Leu Val Leu Ala Pro
            900                      905                      910
His Arg Glu Gly Pro Cys Pro Arg Ala Ser Gly Glu Gly Pro Cys Pro
```

31

```
                915                         920                         925
Ala Ser Thr Ser Gly Leu Leu Gln Pro Leu Cys Val Asp Thr Gly Ala
    930                         935                         940
Ser Ser Tyr Cys Leu Gln Pro Pro Ala Gly Ser Val Leu Ser Gly Thr
945                         950                         955                         960
Trp Pro His Pro Arg Pro Gly Pro Pro Pro Leu Met Ala Pro Trp Pro
                965                         970                         975
Trp Gly Pro Pro Ala Ser Gln Ser Ser Pro Trp Pro Arg Ala Thr Ala
                980                         985                         990
Phe Trp Thr Ser Thr Ser Asp Ser Glu Pro Pro Ala Ser Gly Asp Leu
                995                         1000                        1005
Cys Ser Glu Pro Ser Thr Pro Ala Ser Pro Pro Pro Ser Glu Glu Gly
    1010                        1015                        1020
Ala Arg Thr Gly Pro Pro Glu Pro Val Ser Gln Ala Glu Ala Thr Ser
1025                        1030                        1035                        1040
Thr Gly Glu Pro Pro Pro Val Ser Gly Gly Leu Ala Leu Pro Trp Asp
                1045                        1050                        1055
Pro His Ser Leu Glu Met Val Leu Ile Gly Cys His Gly Ser Gly Thr
                1060                        1065                        1070
Val Gln Trp Thr Gln Glu Glu Gly Thr Gly Val
                1075                        1080
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<210> 15
<211> 1764
<212> DNA
<213> Homo Sapiens

<220>
<221> CDS
<222> (268)...(1266)

<400> 15
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cacgcgtccg ggcctagcag gtgggcaccc ccgcacacat ttgaggcggg gccagatgcc 60
cacagttcag agcctctttt tgtccctggg attggatccc agggctgggt ggggccaggc 120
tgtcccattc cccaacactc ctcctccccg gcgaaaccgg gcaccagcag gcgtttgcga 180
gaggagatac gagctggacg cctggccctt ccctcccacc gggtcctagt ccaccgctcc 240
cggcgccggc tccccgcctc tcccgct atg tac cga ccg cga gcc cgg gcg gct 294
                                Met Tyr Arg Pro Arg Ala Arg Ala Ala
                                 1                   5

ccc gag ggc agg gtc cgg ggc tgc gcg gtg ccc ggc acc gtg ctc ctg 342
Pro Glu Gly Arg Val Arg Gly Cys Ala Val Pro Gly Thr Val Leu Leu
 10                  15                  20                  25

ctg ctc gcc tac ctg gct tac ctg gcg ctg ggc acc ggc gtg ttc tgg 390
Leu Leu Ala Tyr Leu Ala Tyr Leu Ala Leu Gly Thr Gly Val Phe Trp
                30                  35                  40

acg ctg gag ggc cgc gcg gcg cag gac tcc agc cgc agc ttc cag cgc 438
Thr Leu Glu Gly Arg Ala Ala Gln Asp Ser Ser Arg Ser Phe Gln Arg
            45                  50                  55

gac aag tgg gag ctg ttg cag aac ttc acg tgt ctg gac cgc ccg gcg 486
Asp Lys Trp Glu Leu Leu Gln Asn Phe Thr Cys Leu Asp Arg Pro Ala
        60                  65                  70

ctg gac tcg ctg atc cgg gat gtc gtc caa gca tac aaa aac gga gcc 534
Leu Asp Ser Leu Ile Arg Asp Val Val Gln Ala Tyr Lys Asn Gly Ala
    75                  80                  85

agc ctc ctc agc aac acc acc agc atg ggg cgc tgg gag ctc gtg ggc 582
Ser Leu Leu Ser Asn Thr Thr Ser Met Gly Arg Trp Glu Leu Val Gly
```

```
Ser Leu Leu Ser Asn Thr Thr Ser Met Gly Arg Trp Glu Leu Val Gly
 90               95              100                 105

tcc ttc ttc ttt tct gtg tcc acc atc acc acc att ggc tat ggc aac   630
Ser Phe Phe Phe Ser Val Ser Thr Ile Thr Thr Ile Gly Tyr Gly Asn
            110             115                 120

ctg agc ccc aac acg atg gct gcc cgc ctc ttc tgc atc ttc ttt gcc   678
Leu Ser Pro Asn Thr Met Ala Ala Arg Leu Phe Cys Ile Phe Phe Ala
            125             130                 135

ctt gtg ggg atc cca ctc aac ctc gtg gtg ctc aac cga ctg ggg cat   726
Leu Val Gly Ile Pro Leu Asn Leu Val Val Leu Asn Arg Leu Gly His
            140             145                 150

ctc atg cag cag gga gta aac cac tgg gcc agc agg ctg ggg ggc acc   774
Leu Met Gln Gln Gly Val Asn His Trp Ala Ser Arg Leu Gly Gly Thr
            155             160                 165

tgg cag gat cct gac aag gcg cgg tgg ctg gcg ggc tct ggc gcc ctc   822
Trp Gln Asp Pro Asp Lys Ala Arg Trp Leu Ala Gly Ser Gly Ala Leu
170             175             180                 185

ctc tcg ggc ctc ctg ctc ttc ctg ctg ctg cca ccg ctg ctc ttc tcc   870
Leu Ser Gly Leu Leu Leu Phe Leu Leu Leu Pro Pro Leu Leu Phe Ser
            190             195                 200

cac atg gag ggc tgg agc tac aca gag ggc ttc tac ttc gcc ttc atc   918
His Met Glu Gly Trp Ser Tyr Thr Glu Gly Phe Tyr Phe Ala Phe Ile
            205             210                 215

acc ctc agc acc gtg ggc ttc ggc gac tac gtg att gga atg aac ccc   966
Thr Leu Ser Thr Val Gly Phe Gly Asp Tyr Val Ile Gly Met Asn Pro
            220             225                 230

tcc cag agg tac cca ctg tgg tac aag aac atg gtg tcc ctg tgg atc   1014
Ser Gln Arg Tyr Pro Leu Trp Tyr Lys Asn Met Val Ser Leu Trp Ile
    235             240             245

ctc ttt ggg atg gca tgg ctg gcc ttg atc atc aaa ctc atc ctc tcc   1062
Leu Phe Gly Met Ala Trp Leu Ala Leu Ile Ile Lys Leu Ile Leu Ser
250             255             260                 265

cag ctg gag acg cca ggg agg gta tgt tcc tgc tgc cac cac agc tct   1110
Gln Leu Glu Thr Pro Gly Arg Val Cys Ser Cys Cys His His Ser Ser
            270             275                 280

aag gaa gac ttc aag tcc caa agc tgg aga cag gga cct gac cgg gag   1158
Lys Glu Asp Phe Lys Ser Gln Ser Trp Arg Gln Gly Pro Asp Arg Glu
            285             290                 295

cca gag tcc cac tcc cca cag caa gga tgc tat cca gag gga ccc atg   1206
Pro Glu Ser His Ser Pro Gln Gln Gly Cys Tyr Pro Glu Gly Pro Met
            300             305                 310

gga atc ata cag cat ctg gaa cct tct gct cac gct gca ggc tgt ggc   1254
Gly Ile Ile Gln His Leu Glu Pro Ser Ala His Ala Ala Gly Cys Gly
            315             320             325

aag gac agc tag ttatactcca ttctttggtc gtcgtcctcg gtagcaagac   1306
Lys Asp Ser  *
330
```

33

```
ccctgatttt aagctttgca catgtccacc caaactaaag actacatttt ccatccaccc 1366
tagaggctgg gtgcagctat atgattaatt ctgcccaata gggtatacag agacatgtcc 1426
tgggtgacat gggatgtgac tttcgggtgt cggggcagca tgcccttctc ccccacttcc 1486
ttactttagc gggctgcaat gccgccgata tgatggctgg gagctctggc agccatacgg 1546
caccatgaag tagcggcaat gtttgagcgg cacaataaga taggaagagt ctggatctct 1606
gatgatcaca gagccatcct aacaaacgga atatcacccg acctccttta tgtgagagag 1666
aaataaacat cttatgtaaa atccccaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1726
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaa                         1764
```

<210> 16
<211> 332
<212> PRT
<213> Homo Sapiens

<400> 16
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Met Tyr Arg Pro Arg Ala Arg Ala Ala Pro Glu Gly Arg Val Arg Gly
 1               5                  10                  15
Cys Ala Val Pro Gly Thr Val Leu Leu Leu Leu Ala Tyr Leu Ala Tyr
            20                  25                  30
Leu Ala Leu Gly Thr Gly Val Phe Trp Thr Leu Glu Gly Arg Ala Ala
        35                  40                  45
Gln Asp Ser Ser Arg Ser Phe Gln Arg Asp Lys Trp Glu Leu Leu Gln
    50                  55                  60
Asn Phe Thr Cys Leu Asp Arg Pro Ala Leu Asp Ser Leu Ile Arg Asp
65                  70                  75                  80
Val Val Gln Ala Tyr Lys Asn Gly Ala Ser Leu Leu Ser Asn Thr Thr
                85                  90                  95
Ser Met Gly Arg Trp Glu Leu Val Gly Ser Phe Phe Phe Ser Val Ser
            100                 105                 110
Thr Ile Thr Thr Ile Gly Tyr Gly Asn Leu Ser Pro Asn Thr Met Ala
            115                 120                 125
Ala Arg Leu Phe Cys Ile Phe Phe Ala Leu Val Gly Ile Pro Leu Asn
    130                 135                 140
Leu Val Val Leu Asn Arg Leu Gly His Leu Met Gln Gln Gly Val Asn
145                 150                 155                 160
His Trp Ala Ser Arg Leu Gly Gly Thr Trp Gln Asp Pro Asp Lys Ala
            165                 170                 175
Arg Trp Leu Ala Gly Ser Gly Ala Leu Leu Ser Gly Leu Leu Leu Phe
            180                 185                 190
Leu Leu Leu Pro Pro Leu Leu Phe Ser His Met Glu Gly Trp Ser Tyr
        195                 200                 205
Thr Glu Gly Phe Tyr Phe Ala Phe Ile Thr Leu Ser Thr Val Gly Phe
    210                 215                 220
Gly Asp Tyr Val Ile Gly Met Asn Pro Ser Gln Arg Tyr Pro Leu Trp
225                 230                 235                 240
Tyr Lys Asn Met Val Ser Leu Trp Ile Leu Phe Gly Met Ala Trp Leu
            245                 250                 255
Ala Leu Ile Ile Lys Leu Ile Leu Ser Gln Leu Glu Thr Pro Gly Arg
            260                 265                 270
Val Cys Ser Cys Cys His His Ser Ser Lys Glu Asp Phe Lys Ser Gln
    275                 280                 285
Ser Trp Arg Gln Gly Pro Asp Arg Glu Pro Glu Ser His Ser Pro Gln
    290                 295                 300
Gln Gly Cys Tyr Pro Glu Gly Pro Met Gly Ile Ile Gln His Leu Glu
305                 310                 315                 320
Pro Ser Ala His Ala Ala Gly Cys Gly Lys Asp Ser
            325                 330
```

<210> 17
<211> 3227

<212> DNA
<213> Homo Sapiens

<220>
<221> CDS
<222> (345)...(2483)

<400> 17
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cccttttctcg ggaagcgcgc cattgtgttg gtacccggga attcgcggcc gcgtcgaccc 60
ccctgcggag ttgtgttttc tgggaatcag caacaaaytg caaagaaatg gctcaaaagc 120
ttcagctctt tctgtgccct gggagctgag atgcacgtca gtggccttgc cagcgtggcc 180
aattctctgc tgactgccag aaaaaagagg ccaggaagaa agaggaaaga gaagagatcg 240
ctcagggtct gtggtgtgtg gtccatcctc ttgctgagca cattgaaagg aactggctat 300
ctttgatctc ttcctccaga tcagagtcaa ggaatgtgtt tata atg gac act tca 356
                                                   Met Asp Thr Ser
                                                    1
```

```
tcc aaa gaa aat atc cag ttg ttc tgc aaa act tca gtg caa cct gtt 404
Ser Lys Glu Asn Ile Gln Leu Phe Cys Lys Thr Ser Val Gln Pro Val
 5                  10                  15                  20

gga agg cct tct ttt aaa aca gaa tat ccc tcc tca gaa gaa aag caa 452
Gly Arg Pro Ser Phe Lys Thr Glu Tyr Pro Ser Ser Glu Glu Lys Gln
                25                  30                  35

cca tgc tgt ggt gaa cta aag gtg ttc ttg tgt gcc ttg tct ttt gtt 500
Pro Cys Cys Gly Glu Leu Lys Val Phe Leu Cys Ala Leu Ser Phe Val
            40                  45                  50

tac ttt gcc aaa gca ttg gca gaa ggc tat ctg aag agc acc atc act 548
Tyr Phe Ala Lys Ala Leu Ala Glu Gly Tyr Leu Lys Ser Thr Ile Thr
            55                  60                  65

cag ata gag aga agg ttt gat atc cct tct tca ctg gtg gga gtt att 596
Gln Ile Glu Arg Arg Phe Asp Ile Pro Ser Ser Leu Val Gly Val Ile
        70                  75                  80

gat ggt agt ttt gaa att ggg aat ctc tta gtt ata aca ttt gtt agc 644
Asp Gly Ser Phe Glu Ile Gly Asn Leu Leu Val Ile Thr Phe Val Ser
 85                  90                  95                  100

tac ttt gga gcc aaa ctt cac agg cca aaa ata att gga gca ggg tgt 692
Tyr Phe Gly Ala Lys Leu His Arg Pro Lys Ile Ile Gly Ala Gly Cys
                105                 110                 115

gta atc atg gga gtt gga aca ctg ctc att gca atg cct cag ttc ttc 740
Val Ile Met Gly Val Gly Thr Leu Leu Ile Ala Met Pro Gln Phe Phe
                120                 125                 130

atg gag cag tac aaa tat gag aga tat tct cct tcc tcc aat tct act 788
Met Glu Gln Tyr Lys Tyr Glu Arg Tyr Ser Pro Ser Ser Asn Ser Thr
            135                 140                 145

ctc agc atc tct ccg tgt ctc cta gag tca agc agt caa tta cca gtt 836
Leu Ser Ile Ser Pro Cys Leu Leu Glu Ser Ser Ser Gln Leu Pro Val
    150                 155                 160

tca gtt atg gaa aaa tca aaa tcc aaa ata agt aac gaa tgt gaa gtg 884
Ser Val Met Glu Lys Ser Lys Ser Lys Ile Ser Asn Glu Cys Glu Val
165                 170                 175                 180

gac act agc tct tcc atg tgg att tat gtt ttc ctg ggc aat ctt ctt 932
```

35

```
Asp Thr Ser Ser Ser Met Trp Ile Tyr Val Phe Leu Gly Asn Leu Leu
                185             190                 195

cgt gga ata gga gaa act ccc att cag cct ttg ggc att gcc tac ctg   980
Arg Gly Ile Gly Glu Thr Pro Ile Gln Pro Leu Gly Ile Ala Tyr Leu
            200             205                 210

gat gat ttt gcc agt gaa gac aat gca gct ttc tat att ggg tgt gtg   1028
Asp Asp Phe Ala Ser Glu Asp Asn Ala Ala Phe Tyr Ile Gly Cys Val
            215             220                 225

cag acg gtt gca att ata gga cca atc ttt ggt ttc ctg tta ggc tca   1076
Gln Thr Val Ala Ile Ile Gly Pro Ile Phe Gly Phe Leu Leu Gly Ser
            230             235                 240

tta tgt gcc aaa cta tat gtt gac att ggc ttt gta aac cta gat cac   1124
Leu Cys Ala Lys Leu Tyr Val Asp Ile Gly Phe Val Asn Leu Asp His
245             250             255                 260

ata acc att acc cca aaa gat ccc cag tgg gta gga gcc tgg tgg ctt   1172
Ile Thr Ile Thr Pro Lys Asp Pro Gln Trp Val Gly Ala Trp Trp Leu
                265             270                 275

ggc tat cta ata gca gga atc ata agt ctt ctt gca gct gtg cct ttc   1220
Gly Tyr Leu Ile Ala Gly Ile Ile Ser Leu Leu Ala Ala Val Pro Phe
                280             285                 290

tgg tat tta cca aag agt tta cca aga tcc caa agt aga gag gat tct   1268
Trp Tyr Leu Pro Lys Ser Leu Pro Arg Ser Gln Ser Arg Glu Asp Ser
            295             300                 305

aat tct tcc tct gag aaa tcc aag ttt att ata gat gat cac aca gac   1316
Asn Ser Ser Ser Glu Lys Ser Lys Phe Ile Ile Asp Asp His Thr Asp
    310             315                 320

tac caa aca ccc cag gga gaa aat gca aaa ata atg gaa atg gca aga   1364
Tyr Gln Thr Pro Gln Gly Glu Asn Ala Lys Ile Met Glu Met Ala Arg
325             330             335                 340

gat ttt ctt cca tca ctg aag aat ctt ttt gga aac cca gta tac ttc   1412
Asp Phe Leu Pro Ser Leu Lys Asn Leu Phe Gly Asn Pro Val Tyr Phe
            345             350                 355

cta tat tta tgt aca agc act gtt cag ttc aat tct ctg ttc ggc atg   1460
Leu Tyr Leu Cys Thr Ser Thr Val Gln Phe Asn Ser Leu Phe Gly Met
            360             365                 370

gtg acg tac aaa cca aag tac att gag cag cag tat gga cag tca tcc   1508
Val Thr Tyr Lys Pro Lys Tyr Ile Glu Gln Gln Tyr Gly Gln Ser Ser
            375             380                 385

tcc agg gcc aac ttt gtg atc ggg ctc atc aac att cca gca gtg gcc   1556
Ser Arg Ala Asn Phe Val Ile Gly Leu Ile Asn Ile Pro Ala Val Ala
    390             395                 400

ctt gga ata ttc tct ggg ggg ata gtt atg aaa aaa ttc aga atc agt   1604
Leu Gly Ile Phe Ser Gly Gly Ile Val Met Lys Lys Phe Arg Ile Ser
405             410             415                 420

gtg tgt gga gct gca aaa ctc tac ttg gga tca tct gtc ttt ggt tac   1652
Val Cys Gly Ala Ala Lys Leu Tyr Leu Gly Ser Ser Val Phe Gly Tyr
            425             430                 435
```

36

```
ctc cta ttt ctt tcc ctg ttt gca ctg ggc tgt gaa aat tct gat gtg     1700
Leu Leu Phe Leu Ser Leu Phe Ala Leu Gly Cys Glu Asn Ser Asp Val
            440                 445                 450

gca gga cta act gtc tcc tac caa gga acc aaa cct gtc tct tat cat     1748
Ala Gly Leu Thr Val Ser Tyr Gln Gly Thr Lys Pro Val Ser Tyr His
            455                 460                 465

gaa cga gct ctc ttt tca gat tgc aac tca aga tgc aaa tgt tca gag     1796
Glu Arg Ala Leu Phe Ser Asp Cys Asn Ser Arg Cys Lys Cys Ser Glu
    470                 475                 480

aca aaa tgg gaa ccc atg tgc ggt gaa aat gga atc aca tat gta tca     1844
Thr Lys Trp Glu Pro Met Cys Gly Glu Asn Gly Ile Thr Tyr Val Ser
485                 490                 495                 500

gct tgt ctt gct ggt tgt caa acc tcc aac agg agt gga aaa aat att     1892
Ala Cys Leu Ala Gly Cys Gln Thr Ser Asn Arg Ser Gly Lys Asn Ile
            505                 510                 515

ata ttt tac aac tgc act tgt gtg gga att gca gct tct aaa tcc gga     1940
Ile Phe Tyr Asn Cys Thr Cys Val Gly Ile Ala Ala Ser Lys Ser Gly
            520                 525                 530

aat tcc tca ggc ata gtg gga aga tgt cag aaa gac aat gga tgt ccc     1988
Asn Ser Ser Gly Ile Val Gly Arg Cys Gln Lys Asp Asn Gly Cys Pro
            535                 540                 545

caa atg ttt ctg tat ttc ctt gta att tca gtc atc aca tcc tat act     2036
Gln Met Phe Leu Tyr Phe Leu Val Ile Ser Val Ile Thr Ser Tyr Thr
    550                 555                 560

tta tcc cta ggt ggc ata cct gga tac ata tta ctt ctg agg tgc att     2084
Leu Ser Leu Gly Gly Ile Pro Gly Tyr Ile Leu Leu Leu Arg Cys Ile
565                 570                 575                 580

aag cca cag ctt aag tct ttt gcc ttg ggt atc tac aca tta gca ata     2132
Lys Pro Gln Leu Lys Ser Phe Ala Leu Gly Ile Tyr Thr Leu Ala Ile
            585                 590                 595

aga gtt ctt gca gga atc cca gct cca gtg tat ttt gga gtt ttg att     2180
Arg Val Leu Ala Gly Ile Pro Ala Pro Val Tyr Phe Gly Val Leu Ile
            600                 605                 610

gat act tca tgc ctc aaa tgg gga ttt aaa aga tgt gga agt aga gga     2228
Asp Thr Ser Cys Leu Lys Trp Gly Phe Lys Arg Cys Gly Ser Arg Gly
            615                 620                 625

tca tgc aga tta tat gat tca aat gtc ttc aga cat ata tat ctg gga     2276
Ser Cys Arg Leu Tyr Asp Ser Asn Val Phe Arg His Ile Tyr Leu Gly
    630                 635                 640

cta act gtg ata ctg ggc aca gtg tca att ctc cta agc att gca gta     2324
Leu Thr Val Ile Leu Gly Thr Val Ser Ile Leu Leu Ser Ile Ala Val
645                 650                 655                 660

ctt ttc att tta aag aaa aat tat gtt tca aaa cac aga agt ttt ata     2372
Leu Phe Ile Leu Lys Lys Asn Tyr Val Ser Lys His Arg Ser Phe Ile
            665                 670                 675

acc aag aga gaa aga aca atg gtg tct aca aga ttc caa aag gaa aat     2420
Thr Lys Arg Glu Arg Thr Met Val Ser Thr Arg Phe Gln Lys Glu Asn
```

37

```
    Thr Lys Arg Glu Arg Thr Met Val Ser Thr Arg Phe Gln Lys Glu Asn
            680         685                 690

tac act aca agt gat cat ctg cta caa ccc aac tac tgg cca ggc aag   2468
Tyr Thr Thr Ser Asp His Leu Leu Gln Pro Asn Tyr Trp Pro Gly Lys
        695             700                 705

gaa act caa ctt tag aaacatgatg actggaagtc atgtcttcta attggttgac   2523
Glu Thr Gln Leu  *
    710

attttgcaaa caaataaatt gtaatcaaaa gagctctaaa tttgtaattt ctttctcctt 2583
tcaaaaaatg tctactttgt tttggtccta ggcattaggt aatataactg ataatatact 2643
gaaacatata atggaagatg cagatgataa aactaatttt gaacttttta atttatataa 2703
attattttat atcacttact tatttcactt tattttgctt tgtgctcatt gatatatatt 2763
agctgtactc ctagaagaac aattgtctct attgtcacac atggttatat ttaaagtaat 2823
ttctgaactg tgtaatgtgt ctagagtaag caaatactgc taacaattaa ctcatacctt 2883
gggttccttc aagtattact cctatagtat tttctcccat agctgtcttc atctgtgtat 2943
tttaataatg atcttaggat ggagcagaac atggagagga agatttcatt ttaagctcct 3003
ccttttcttt gaaatacaat aatttatata gaaatgtgta gcagcaaatt atattgggga 3063
ttagaatttt gaattaatag ctctcctact attaatttac atgtgctttt tgtgtggcgc 3123
tataagtgac tatggttgta aagtaataaa attgatgtta acatgcccaa aaaaaaaaaa 3183
aaaaaaaacc aaaaaaaaaa aaaaaaagg gcgggccgct agac               3227


<210> 18
<211> 712
<212> PRT
<213> Homo Sapiens

<400> 18
Met Asp Thr Ser Ser Lys Glu Asn Ile Gln Leu Phe Cys Lys Thr Ser
 1               5                   10                  15
Val Gln Pro Val Gly Arg Pro Ser Phe Lys Thr Glu Tyr Pro Ser Ser
            20                  25                  30
Glu Glu Lys Gln Pro Cys Cys Gly Glu Leu Lys Val Phe Leu Cys Ala
        35                  40                  45
Leu Ser Phe Val Tyr Phe Ala Lys Ala Leu Ala Glu Gly Tyr Leu Lys
    50                  55                  60
Ser Thr Ile Thr Gln Ile Glu Arg Arg Phe Asp Ile Pro Ser Ser Leu
65                  70                  75                  80
Val Gly Val Ile Asp Gly Ser Phe Glu Ile Gly Asn Leu Leu Val Ile
            85                  90                  95
Thr Phe Val Ser Tyr Phe Gly Ala Lys Leu His Arg Pro Lys Ile Ile
            100                 105                 110
Gly Ala Gly Cys Val Ile Met Gly Val Gly Thr Leu Leu Ile Ala Met
        115                 120                 125
Pro Gln Phe Phe Met Glu Gln Tyr Lys Tyr Glu Arg Tyr Ser Pro Ser
    130                 135                 140
Ser Asn Ser Thr Leu Ser Ile Ser Pro Cys Leu Leu Glu Ser Ser Ser
145                 150                 155                 160
Gln Leu Pro Val Ser Val Met Glu Lys Ser Lys Ser Lys Ile Ser Asn
            165                 170                 175
Glu Cys Glu Val Asp Thr Ser Ser Ser Met Trp Ile Tyr Val Phe Leu
            180                 185                 190
Gly Asn Leu Leu Arg Gly Ile Gly Glu Thr Pro Ile Gln Pro Leu Gly
        195                 200                 205
Ile Ala Tyr Leu Asp Asp Phe Ala Ser Glu Asp Asn Ala Ala Phe Tyr
    210                 215                 220
Ile Gly Cys Val Gln Thr Val Ala Ile Ile Gly Pro Ile Phe Gly Phe
225                 230                 235                 240
Leu Leu Gly Ser Leu Cys Ala Lys Leu Tyr Val Asp Ile Gly Phe Val
            245                 250                 255
```

38

```
Asn Leu Asp His Ile Thr Ile Thr Pro Lys Asp Pro Gln Trp Val Gly
          260                     265             270
Ala Trp Trp Leu Gly Tyr Leu Ile Ala Gly Ile Ile Ser Leu Leu Ala
     275                 280             285
Ala Val Pro Phe Trp Tyr Leu Pro Lys Ser Leu Pro Arg Ser Gln Ser
     290                 295             300
Arg Glu Asp Ser Asn Ser Ser Ser Glu Lys Ser Lys Phe Ile Ile Asp
305                 310             315                     320
Asp His Thr Asp Tyr Gln Thr Pro Gln Gly Glu Asn Ala Lys Ile Met
               325             330                     335
Glu Met Ala Arg Asp Phe Leu Pro Ser Leu Lys Asn Leu Phe Gly Asn
          340                 345                 350
Pro Val Tyr Phe Leu Tyr Leu Cys Thr Ser Thr Val Gln Phe Asn Ser
          355                 360                 365
Leu Phe Gly Met Val Thr Tyr Lys Pro Lys Tyr Ile Glu Gln Gln Tyr
     370                 375                 380
Gly Gln Ser Ser Ser Arg Ala Asn Phe Val Ile Gly Leu Ile Asn Ile
385                 390                 395                     400
Pro Ala Val Ala Leu Gly Ile Phe Ser Gly Gly Ile Val Met Lys Lys
               405                 410                     415
Phe Arg Ile Ser Val Cys Gly Ala Ala Lys Leu Tyr Leu Gly Ser Ser
          420                 425                 430
Val Phe Gly Tyr Leu Leu Phe Leu Ser Leu Phe Ala Leu Gly Cys Glu
          435                 440                 445
Asn Ser Asp Val Ala Gly Leu Thr Val Ser Tyr Gln Gly Thr Lys Pro
     450                 455                 460
Val Ser Tyr His Glu Arg Ala Leu Phe Ser Asp Cys Asn Ser Arg Cys
465                 470                 475                     480
Lys Cys Ser Glu Thr Lys Trp Glu Pro Met Cys Gly Glu Asn Gly Ile
               485                 490                     495
Thr Tyr Val Ser Ala Cys Leu Ala Gly Cys Gln Thr Ser Asn Arg Ser
               500                 505                 510
Gly Lys Asn Ile Ile Phe Tyr Asn Cys Thr Cys Val Gly Ile Ala Ala
          515                 520                 525
Ser Lys Ser Gly Asn Ser Ser Gly Ile Val Gly Arg Cys Gln Lys Asp
     530                 535                 540
Asn Gly Cys Pro Gln Met Phe Leu Tyr Phe Leu Val Ile Ser Val Ile
545                 550                 555                     560
Thr Ser Tyr Thr Leu Ser Leu Gly Gly Ile Pro Gly Tyr Ile Leu Leu
               565                 570                 575
Leu Arg Cys Ile Lys Pro Gln Leu Lys Ser Phe Ala Leu Gly Ile Tyr
          580                  585                590
Thr Leu Ala Ile Arg Val Leu Ala Gly Ile Pro Ala Pro Val Tyr Phe
          595                 600                 605
Gly Val Leu Ile Asp Thr Ser Cys Leu Lys Trp Gly Phe Lys Arg Cys
     610                 615                 620
Gly Ser Arg Gly Ser Cys Arg Leu Tyr Asp Ser Asn Val Phe Arg His
625                 630                 635                     640
Ile Tyr Leu Gly Leu Thr Val Ile Leu Gly Thr Val Ser Ile Leu Leu
          645                 650                     655
Ser Ile Ala Val Leu Phe Ile Leu Lys Lys Asn Tyr Val Ser Lys His
          660                 665                 670
Arg Ser Phe Ile Thr Lys Arg Glu Arg Thr Met Val Ser Thr Arg Phe
          675                 680                 685
Gln Lys Glu Asn Tyr Thr Thr Ser Asp His Leu Leu Gln Pro Asn Tyr
     690                 695                 700
Trp Pro Gly Lys Glu Thr Gln Leu
705                 710
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atg cag ggg aag aag ccg ggc ggt tcg tcg ggc ggc ggc cgg agc ggc      48
Met Gln Gly Lys Lys Pro Gly Gly Ser Ser Gly Gly Gly Arg Ser Gly
 1               5                  10                  15

gag ctg cag ggg gac gag gcg cag agg aac aag aaa aag aaa aag aag      96
Glu Leu Gln Gly Asp Glu Ala Gln Arg Asn Lys Lys Lys Lys Lys Lys
                20                  25                  30

gtg tcc tgc ttt tcc aac atc aag atc ttc ctg gtg tcc gag tgc gcc     144
Val Ser Cys Phe Ser Asn Ile Lys Ile Phe Leu Val Ser Glu Cys Ala
            35                  40                  45

ctg atg ctg gcg cag ggc acg gtg ggc gcc tac ctg gtg agc gtc ctg     192
Leu Met Leu Ala Gln Gly Thr Val Gly Ala Tyr Leu Val Ser Val Leu
        50                  55                  60

acc acc ctg gag cgt agg ttc aac ctg cag agc gct gac gtg ggt gtg     240
Thr Thr Leu Glu Arg Arg Phe Asn Leu Gln Ser Ala Asp Val Gly Val
 65                  70                  75                  80

atc gct agc agc ttc gag atc ggg aac ctg gcg ctc atc ctc ttc gtg     288
Ile Ala Ser Ser Phe Glu Ile Gly Asn Leu Ala Leu Ile Leu Phe Val
                85                  90                  95

agc tac ttc ggg gca cgc ggg cac cgg ccg cgc ctg atc ggc tgc ggc     336
Ser Tyr Phe Gly Ala Arg Gly His Arg Pro Arg Leu Ile Gly Cys Gly
            100                 105                 110

ggc atc gtc atg gcg ctg ggc gcg ctg ctg tcg gcg ctg ccc gag ttc     384
Gly Ile Val Met Ala Leu Gly Ala Leu Leu Ser Ala Leu Pro Glu Phe
        115                 120                 125

ctg acc cac cag tac aag tac gag gcg ggc gag atc cgc tgg ggc gcc     432
Leu Thr His Gln Tyr Lys Tyr Glu Ala Gly Glu Ile Arg Trp Gly Ala
    130                 135                 140

gag ggc cgc gac gtc tgc gca gcc aac ggc tcg ggc ggc gac gag ggg     480
Glu Gly Arg Asp Val Cys Ala Ala Asn Gly Ser Gly Gly Asp Glu Gly
145                 150                 155                 160

ccc gac ccc gac ctc atc tgc cgc aac cgg acg gct acc aac atg atg     528
Pro Asp Pro Asp Leu Ile Cys Arg Asn Arg Thr Ala Thr Asn Met Met
                165                 170                 175

tac ttg ctg ctc att ggg gcc cag gtg ctc ctg ggc atc ggt gct acc     576
Tyr Leu Leu Leu Ile Gly Ala Gln Val Leu Leu Gly Ile Gly Ala Thr
            180                 185                 190

cct gtg cag ccc ctg ggc gtc tcc tac atc gac gac cac gtg cgg agg     624
Pro Val Gln Pro Leu Gly Val Ser Tyr Ile Asp Asp His Val Arg Arg
        195                 200                 205

aag gac tcc tcg ctc tat ata gga atc ctg ttc acg atg ctg gta ttt     672
Lys Asp Ser Ser Leu Tyr Ile Gly Ile Leu Phe Thr Met Leu Val Phe
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40

```
gga cca gcc tgc ggg ttt atc ctg ggc tct ttc tgt acc aaa atc tac    720
Gly Pro Ala Cys Gly Phe Ile Leu Gly Ser Phe Cys Thr Lys Ile Tyr
225                 230                 235                 240

gtg gat gcg gtc ttc att gac aca agt aac ctg gac atc act ccg gac    768
Val Asp Ala Val Phe Ile Asp Thr Ser Asn Leu Asp Ile Thr Pro Asp
                    245                 250                 255

gac ccc cgc tgg atc gga gcc tgg tgg ggt ggc ttt ctg ctc tgc ggt    816
Asp Pro Arg Trp Ile Gly Ala Trp Trp Gly Gly Phe Leu Leu Cys Gly
                260                 265                 270

gcc tta ctc ttc ttc tct tcc ctc ttg atg ttt ggg ttt cca cag tcc    864
Ala Leu Leu Phe Phe Ser Ser Leu Leu Met Phe Gly Phe Pro Gln Ser
            275                 280                 285

ctg ccc ccg cac tca gac ccc gcc atg gaa agc gag cag gcc atg ctc    912
Leu Pro Pro His Ser Asp Pro Ala Met Glu Ser Glu Gln Ala Met Leu
    290                 295                 300

tcc gaa aga gaa tac gag aga ccc aag ccc agc aac ggg gtc ctg agg    960
Ser Glu Arg Glu Tyr Glu Arg Pro Lys Pro Ser Asn Gly Val Leu Arg
305                 310                 315                 320

cac ccc ctg gag cca gac agc agt gcc tcc tgt ttc cag cag ctg aga   1008
His Pro Leu Glu Pro Asp Ser Ser Ala Ser Cys Phe Gln Gln Leu Arg
                325                 330                 335

gtg atc ccg aag gtc acc aag cac ctg ctc tca aac cct gtg ttc acc   1056
Val Ile Pro Lys Val Thr Lys His Leu Leu Ser Asn Pro Val Phe Thr
            340                 345                 350

tgc atc atc ctg gcc gcc tgc atg gag att gca gtg gtg gct ggc ttc   1104
Cys Ile Ile Leu Ala Ala Cys Met Glu Ile Ala Val Val Ala Gly Phe
            355                 360                 365

gct gcc ttt ttg ggg aag tac ctg gag cag cag ttt aac ctc acc acc   1152
Ala Ala Phe Leu Gly Lys Tyr Leu Glu Gln Gln Phe Asn Leu Thr Thr
    370                 375                 380

tct tct gcc aac cag ctg ctt ggg atg act gcg atc ccg tgt gct tgt   1200
Ser Ser Ala Asn Gln Leu Leu Gly Met Thr Ala Ile Pro Cys Ala Cys
385                 390                 395                 400

ctg ggt atc ttc ctg gga ggt ctt ttg gtg aag aag ctc agc ctg tct   1248
Leu Gly Ile Phe Leu Gly Gly Leu Leu Val Lys Lys Leu Ser Leu Ser
            405                 410                 415

gcc ctg ggg gcc att cgg atg gcc atg ctc gtc aac ctg gtg tcc act   1296
Ala Leu Gly Ala Ile Arg Met Ala Met Leu Val Asn Leu Val Ser Thr
            420                 425                 430

gct tgc tac gtc tcc ttc ctc ttc ctg ggc tgc gac act ggc cct gtg   1344
Ala Cys Tyr Val Ser Phe Leu Phe Leu Gly Cys Asp Thr Gly Pro Val
            435                 440                 445

gct ggg gtt act gtt ccc tat gga aac agc aca gca cct ggc tca gcc   1392
Ala Gly Val Thr Val Pro Tyr Gly Asn Ser Thr Ala Pro Gly Ser Ala
    450                 455                 460
```

```
ctg gac ccc tac tcg ccc tgc aat aat aac tgt gaa tgc caa acc gat    1440
Leu Asp Pro Tyr Ser Pro Cys Asn Asn Asn Cys Glu Cys Gln Thr Asp
465                 470                 475                 480

tcc ttc act cca gtg tgt ggg gca gat ggc atc acc tac ctg tct gcc    1488
Ser Phe Thr Pro Val Cys Gly Ala Asp Gly Ile Thr Tyr Leu Ser Ala
                485                 490                 495

tgc ttt gct ggc tgc aac agc acg aat ctc acg ggc tgt gcg tgc ctc    1536
Cys Phe Ala Gly Cys Asn Ser Thr Asn Leu Thr Gly Cys Ala Cys Leu
                500                 505                 510

acc acc gtc cct gct gag aac gca acc gtg gtt cct gga aaa tgc ccc    1584
Thr Thr Val Pro Ala Glu Asn Ala Thr Val Val Pro Gly Lys Cys Pro
                515                 520                 525

agt cct ggg tgc caa gag gcc ttc ctc act ttc ctc tgt gtg atg tgt    1632
Ser Pro Gly Cys Gln Glu Ala Phe Leu Thr Phe Leu Cys Val Met Cys
        530                 535                 540

atc tgc agc ctg atc ggt gcc atg gca cag aca ccc tca gtc atc atc    1680
Ile Cys Ser Leu Ile Gly Ala Met Ala Gln Thr Pro Ser Val Ile Ile
545                 550                 555                 560

ctc atc agg aca gtc agc cct gaa ctc aag tct tac gct ttg gga gtt    1728
Leu Ile Arg Thr Val Ser Pro Glu Leu Lys Ser Tyr Ala Leu Gly Val
                565                 570                 575

ctt ttt ctc ctc ctt cgt ttg ttg ggc ttc atc cct cca ccc ctc atc    1776
Leu Phe Leu Leu Leu Arg Leu Leu Gly Phe Ile Pro Pro Pro Leu Ile
                580                 585                 590

ttc ggg gct ggc atc gac tcc acc tgc ctg ttc tgg agc acg ttc tgt    1824
Phe Gly Ala Gly Ile Asp Ser Thr Cys Leu Phe Trp Ser Thr Phe Cys
        595                 600                 605

ggg gag caa ggc gcc tgc gtc ctc tac gac aat gtg gtc tac cga tac    1872
Gly Glu Gln Gly Ala Cys Val Leu Tyr Asp Asn Val Val Tyr Arg Tyr
        610                 615                 620

ctg tat gtc agc atc gcc atc gcg ctc aaa tcc ttc gcc ttc atc ctg    1920
Leu Tyr Val Ser Ile Ala Ile Ala Leu Lys Ser Phe Ala Phe Ile Leu
625                 630                 635                 640

tac acc acc acg tgg cag tgc ctg agg aaa aac tat aaa cgc tac atc    1968
Tyr Thr Thr Thr Trp Gln Cys Leu Arg Lys Asn Tyr Lys Arg Tyr Ile
                645                 650                 655

aaa aac cac gag ggc ggg ctg agc acc agt gag ttc ttt gcc tct act    2016
Lys Asn His Glu Gly Gly Leu Ser Thr Ser Glu Phe Phe Ala Ser Thr
                660                 665                 670

ctg acc cta gac aac ctg ggg agg gac cct gtg ccc gca aac cag aca    2064
Leu Thr Leu Asp Asn Leu Gly Arg Asp Pro Val Pro Ala Asn Gln Thr
                675                 680                 685

cat agg aca aag ttt atc tat aac ctg gaa gac cat gag tgg tgt gaa    2112
His Arg Thr Lys Phe Ile Tyr Asn Leu Glu Asp His Glu Trp Cys Glu
        690                 695                 700

aac atg gag tcc gtt tta tag                                        2133
Asn Met Glu Ser Val Leu  *
```

42

<210> 20
<211> 710
<212> PRT
<213> Homo Sapiens

<400> 20
Met Gln Gly Lys Lys Pro Gly Gly Ser Ser Gly Gly Gly Arg Ser Gly
 1   5   10   15
Glu Leu Gln Gly Asp Glu Ala Gln Arg Asn Lys Lys Lys Lys Lys Lys
                20   25   30
Val Ser Cys Phe Ser Asn Ile Lys Ile Phe Leu Val Ser Glu Cys Ala
                35   40   45
Leu Met Leu Ala Gln Gly Thr Val Gly Ala Tyr Leu Val Ser Val Leu
        50   55   60
Thr Thr Leu Glu Arg Arg Phe Asn Leu Gln Ser Ala Asp Val Gly Val
65   70   75   80
Ile Ala Ser Ser Phe Glu Ile Gly Asn Leu Ala Leu Ile Leu Phe Val
                85   90   95
Ser Tyr Phe Gly Ala Arg Gly His Arg Pro Arg Leu Ile Gly Cys Gly
            100   105   110
Gly Ile Val Met Ala Leu Gly Ala Leu Leu Ser Ala Leu Pro Glu Phe
            115   120   125
Leu Thr His Gln Tyr Lys Tyr Glu Ala Gly Glu Ile Arg Trp Gly Ala
    130   135   140
Glu Gly Arg Asp Val Cys Ala Ala Asn Gly Ser Gly Gly Asp Glu Gly
145   150   155   160
Pro Asp Pro Asp Leu Ile Cys Arg Asn Arg Thr Ala Thr Asn Met Met
            165   170   175
Tyr Leu Leu Leu Ile Gly Ala Gln Val Leu Leu Gly Ile Gly Ala Thr
            180   185   190
Pro Val Gln Pro Leu Gly Val Ser Tyr Ile Asp Asp His Val Arg Arg
            195   200   205
Lys Asp Ser Ser Leu Tyr Ile Gly Ile Leu Phe Thr Met Leu Val Phe
    210   215   220
Gly Pro Ala Cys Gly Phe Ile Leu Gly Ser Phe Cys Thr Lys Ile Tyr
225   230   235   240
Val Asp Ala Val Phe Ile Asp Thr Ser Asn Leu Asp Ile Thr Pro Asp
            245   250   255
Asp Pro Arg Trp Ile Gly Ala Trp Trp Gly Gly Phe Leu Leu Cys Gly
            260   265   270
Ala Leu Leu Phe Phe Ser Ser Leu Leu Met Phe Gly Phe Pro Gln Ser
            275   280   285
Leu Pro Pro His Ser Asp Pro Ala Met Glu Ser Glu Gln Ala Met Leu
    290   295   300
Ser Glu Arg Glu Tyr Glu Arg Pro Lys Pro Ser Asn Gly Val Leu Arg
305   310   315   320
His Pro Leu Glu Pro Asp Ser Ser Ala Ser Cys Phe Gln Gln Leu Arg
            325   330   335
Val Ile Pro Lys Val Thr Lys His Leu Leu Ser Asn Pro Val Phe Thr
            340   345   350
Cys Ile Ile Leu Ala Ala Cys Met Glu Ile Ala Val Val Ala Gly Phe
            355   360   365
Ala Ala Phe Leu Gly Lys Tyr Leu Glu Gln Gln Phe Asn Leu Thr Thr
    370   375   380
Ser Ser Ala Asn Gln Leu Leu Gly Met Thr Ala Ile Pro Cys Ala Cys
385   390   395   400
Leu Gly Ile Phe Leu Gly Gly Leu Leu Val Lys Lys Leu Ser Leu Ser
            405   410   415
Ala Leu Gly Ala Ile Arg Met Ala Met Leu Val Asn Leu Val Ser Thr

43

```
                  420                      425                      430
Ala Cys Tyr Val Ser Phe Leu Phe Leu Gly Cys Asp Thr Gly Pro Val
              435                  440                  445
Ala Gly Val Thr Val Pro Tyr Gly Asn Ser Thr Ala Pro Gly Ser Ala
          450                  455                  460
Leu Asp Pro Tyr Ser Pro Cys Asn Asn Asn Cys Glu Cys Gln Thr Asp
465                      470                  475                  480
Ser Phe Thr Pro Val Cys Gly Ala Asp Gly Ile Thr Tyr Leu Ser Ala
                  485                  490                  495
Cys Phe Ala Gly Cys Asn Ser Thr Asn Leu Thr Gly Cys Ala Cys Leu
              500                  505                  510
Thr Thr Val Pro Ala Glu Asn Ala Thr Val Val Pro Gly Lys Cys Pro
          515                  520                  525
Ser Pro Gly Cys Gln Glu Ala Phe Leu Thr Phe Leu Cys Val Met Cys
          530                  535                  540
Ile Cys Ser Leu Ile Gly Ala Met Ala Gln Thr Pro Ser Val Ile Ile
545                  550                  555                  560
Leu Ile Arg Thr Val Ser Pro Glu Leu Lys Ser Tyr Ala Leu Gly Val
              565                  570                  575
Leu Phe Leu Leu Leu Arg Leu Leu Gly Phe Ile Pro Pro Pro Leu Ile
          580                  585                  590
Phe Gly Ala Gly Ile Asp Ser Thr Cys Leu Phe Trp Ser Thr Phe Cys
          595                  600                  605
Gly Glu Gln Gly Ala Cys Val Leu Tyr Asp Asn Val Val Tyr Arg Tyr
      610                  615                  620
Leu Tyr Val Ser Ile Ala Ile Ala Leu Lys Ser Phe Ala Phe Ile Leu
625                  630                  635                  640
Tyr Thr Thr Thr Trp Gln Cys Leu Arg Lys Asn Tyr Lys Arg Tyr Ile
              645                  650                  655
Lys Asn His Glu Gly Gly Leu Ser Thr Ser Glu Phe Phe Ala Ser Thr
          660                  665                  670
Leu Thr Leu Asp Asn Leu Gly Arg Asp Pro Val Pro Ala Asn Gln Thr
          675                  680                  685
His Arg Thr Lys Phe Ile Tyr Asn Leu Glu Asp His Glu Trp Cys Glu
      690                  695                  700
Asn Met Glu Ser Val Leu
705                  710


<210> 21
<211> 4197
<212> DNA
<213> Homo Sapiens

<220>
<221> CDS
<222> (1)...(3348)

<400> 21
atg agg aga ctg agt ttg tgg tgg ctg ctg agc agg gtc tgt ctg ctg        48
Met Arg Arg Leu Ser Leu Trp Trp Leu Leu Ser Arg Val Cys Leu Leu
 1               5                  10                  15

ttg ccg ccg ccc tgc gca ctg gtg ctg gcc ggg gtg ccc agc tcc tcc        96
Leu Pro Pro Pro Cys Ala Leu Val Leu Ala Gly Val Pro Ser Ser Ser
              20                  25                  30

tcg cac ccg cag ccc tgc cag atc ctc aag cgc atc ggg cac gcg gtg       144
Ser His Pro Gln Pro Cys Gln Ile Leu Lys Arg Ile Gly His Ala Val
          35                  40                  45

agg gtg ggc gcg gtg cac ttg cag ccc tgg acc acc gcc ccc cgc gcg       192
```

44

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Arg Val Gly Ala Val His Leu Gln Pro Trp Thr Thr Ala Pro Arg Ala
    50                      55                  60

gcc agc cgc gct ccg gac gac agc cga gca gga gcc cag agg gat gag   240
Ala Ser Arg Ala Pro Asp Asp Ser Arg Ala Gly Ala Gln Arg Asp Glu
 65                      70                  75                  80

ccg gag cca ggg act agg cgg tcc ccg gcg ccc tcg ccg ggc gca cgc   288
Pro Glu Pro Gly Thr Arg Arg Ser Pro Ala Pro Ser Pro Gly Ala Arg
                    85                  90                  95

tgg ttg ggg agc acc ctg cat ggc cgg ggg ccg ccg ggc tcc cgt aag   336
Trp Leu Gly Ser Thr Leu His Gly Arg Gly Pro Pro Gly Ser Arg Lys
                100                 105                 110

ccc ggg gag ggc gcc agg gcg gag gcc ctg tgg cca cgg gac gcc ctc   384
Pro Gly Glu Gly Ala Arg Ala Glu Ala Leu Trp Pro Arg Asp Ala Leu
                115                 120                 125

cta ttt gcc gtg gac aac ctg aac cgc gtg gaa ggg ctg cta ccc tac   432
Leu Phe Ala Val Asp Asn Leu Asn Arg Val Glu Gly Leu Leu Pro Tyr
            130                 135                 140

aac ctg tct ttg gaa gta gtg atg gcc atc gag gca ggc ctg ggc gat   480
Asn Leu Ser Leu Glu Val Val Met Ala Ile Glu Ala Gly Leu Gly Asp
145                 150                 155                 160

ctg cca ctt ttg ccc ttc tcc tcc cct agt tcg cca tgg agc agt gac   528
Leu Pro Leu Leu Pro Phe Ser Ser Pro Ser Ser Pro Trp Ser Ser Asp
                165                 170                 175

cct ttc tcc ttc ctg caa agt gtg tgc cat acc gtg gtg gtg caa ggg   576
Pro Phe Ser Phe Leu Gln Ser Val Cys His Thr Val Val Val Gln Gly
                180                 185                 190

gtg tcg gcg ctg ctc gcc ttc ccc cag agc cag ggc gaa atg atg gag   624
Val Ser Ala Leu Leu Ala Phe Pro Gln Ser Gln Gly Glu Met Met Glu
            195                 200                 205

ctc gac ttg gtc agc tta gtc ctg cac att cca gtg atc agc atc gtg   672
Leu Asp Leu Val Ser Leu Val Leu His Ile Pro Val Ile Ser Ile Val
    210                 215                 220

cgc cac gag ttt ccg cgg gag agt cag aat ccc ctt cac cta caa ctg   720
Arg His Glu Phe Pro Arg Glu Ser Gln Asn Pro Leu His Leu Gln Leu
225                 230                 235                 240

agt tta gaa aat tca tta agt tct gat gct gat gtc act gtc tca atc   768
Ser Leu Glu Asn Ser Leu Ser Ser Asp Ala Asp Val Thr Val Ser Ile
                245                 250                 255

ctg acc atg aac aac tgg tac aat ttt agc ttg ttg ctg tgc cag gaa   816
Leu Thr Met Asn Asn Trp Tyr Asn Phe Ser Leu Leu Leu Cys Gln Glu
                260                 265                 270

gac tgg aac atc acc gac ttc ctc ctc ctt acc cag aat aat tcc aag   864
Asp Trp Asn Ile Thr Asp Phe Leu Leu Leu Thr Gln Asn Asn Ser Lys
            275                 280                 285

ttc cac ctt ggt tct atc atc aac atc acc gct aac ctc ccc tcc acc   912
Phe His Leu Gly Ser Ile Ile Asn Ile Thr Ala Asn Leu Pro Ser Thr
    290                 295                 300
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45

```
cag gac ctc ttg agc ttc cta cag atc cag ctt gag agt att aag aac    960
Gln Asp Leu Leu Ser Phe Leu Gln Ile Gln Leu Glu Ser Ile Lys Asn
305                     310                 315                 320

agc aca ccc aca gtg gtg atg ttt ggc tgc gac atg gaa agt atc cgg   1008
Ser Thr Pro Thr Val Val Met Phe Gly Cys Asp Met Glu Ser Ile Arg
                    325                 330                 335

cgg att ttc gaa att aca acc cag ttt ggg gtc atg ccc cct gaa ctt   1056
Arg Ile Phe Glu Ile Thr Thr Gln Phe Gly Val Met Pro Pro Glu Leu
                340                 345                 350

cgt tgg gtg ctg gga gat tcc cag aat atg gag gaa ctg agg aca gag   1104
Arg Trp Val Leu Gly Asp Ser Gln Asn Met Glu Glu Leu Arg Thr Glu
                355                 360                 365

ggt ctg ccc tta gga ctc att gct cat gga aaa aca aca cag tct gtc   1152
Gly Leu Pro Leu Gly Leu Ile Ala His Gly Lys Thr Thr Gln Ser Val
        370                 375                 380

ttt gag cac tac gta caa gat gct atg gag ctg gtc gca aga gct gta   1200
Phe Glu His Tyr Val Gln Asp Ala Met Glu Leu Val Ala Arg Ala Val
385                     390                 395                 400

gcc aca gcc acc atg atc caa cca gaa ctt gct ctc att ccc agc acg   1248
Ala Thr Ala Thr Met Ile Gln Pro Glu Leu Ala Leu Ile Pro Ser Thr
                    405                 410                 415

atg aac tgc atg gag gtg gaa act aca aat ctc act tca gga caa tat   1296
Met Asn Cys Met Glu Val Glu Thr Thr Asn Leu Thr Ser Gly Gln Tyr
                420                 425                 430

tta tca agg ttt cta gcc aat acc act ttc aga ggc ctc agt ggt tcc   1344
Leu Ser Arg Phe Leu Ala Asn Thr Thr Phe Arg Gly Leu Ser Gly Ser
            435                 440                 445

att aga gta aaa ggt tcc acc atc gtc agc tca gaa aac aac ttt ttc   1392
Ile Arg Val Lys Gly Ser Thr Ile Val Ser Ser Glu Asn Asn Phe Phe
        450                 455                 460

atc tgg aat ctt caa cat gac ccc atg gga aag cca atg tgg acc cgc   1440
Ile Trp Asn Leu Gln His Asp Pro Met Gly Lys Pro Met Trp Thr Arg
465                     470                 475                 480

ttg ggc agc tgg cag ggg aga aag att gtc atg gac tat gga ata tgg   1488
Leu Gly Ser Trp Gln Gly Arg Lys Ile Val Met Asp Tyr Gly Ile Trp
                485                 490                 495

cca gag cag gcc cag aga cac aaa acc cac ttc caa cat cca agt aag   1536
Pro Glu Gln Ala Gln Arg His Lys Thr His Phe Gln His Pro Ser Lys
                500                 505                 510

cta cac ttg aga gtg gtt acc ctg att gag cat cct ttt gtc ttc aca   1584
Leu His Leu Arg Val Val Thr Leu Ile Glu His Pro Phe Val Phe Thr
            515                 520                 525

agg gag gta gat gat gaa ggc ttg tgc cct gct ggc caa ctc tgt cta   1632
Arg Glu Val Asp Asp Glu Gly Leu Cys Pro Ala Gly Gln Leu Cys Leu
        530                 535                 540

gac ccc atg act aat gac tct tcc aca ctg gac agc ctt ttt agc agc   1680
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46

```
Asp Pro Met Thr Asn Asp Ser Ser Thr Leu Asp Ser Leu Phe Ser Ser
545             550             555             560

ctc cat agc agt aat gat aca gtg ccc att aaa ttc aag aag tgc tgc      1728
Leu His Ser Ser Asn Asp Thr Val Pro Ile Lys Phe Lys Lys Cys Cys
                565             570             575

tat gga tat tgc att gat ctg ctg gaa aag ata gca gaa gac atg aac      1776
Tyr Gly Tyr Cys Ile Asp Leu Leu Glu Lys Ile Ala Glu Asp Met Asn
            580             585             590

ttt gac ttc gac ctc tat att gta ggg gat gga aag tat gga gca tgg      1824
Phe Asp Phe Asp Leu Tyr Ile Val Gly Asp Gly Lys Tyr Gly Ala Trp
        595             600             605

aaa aat ggg cac tgg act ggg cta gtg ggt gat ctc ctg aga ggg act      1872
Lys Asn Gly His Trp Thr Gly Leu Val Gly Asp Leu Leu Arg Gly Thr
    610             615             620

gcc cac atg gca gtc act tcc ttt agc atc aat act gca cgg agc cag      1920
Ala His Met Ala Val Thr Ser Phe Ser Ile Asn Thr Ala Arg Ser Gln
625             630             635             640

gtg ata gac ttc acc agc cct ttc ttc tcc acc agc ttg ggc atc tta      1968
Val Ile Asp Phe Thr Ser Pro Phe Phe Ser Thr Ser Leu Gly Ile Leu
            645             650             655

gtg agg acc cga gat aca gca gct ccc att gga gcc ttc atg tgg cca      2016
Val Arg Thr Arg Asp Thr Ala Ala Pro Ile Gly Ala Phe Met Trp Pro
            660             665             670

ctc cac tgg aca atg tgg ctg ggg att ttt gtg gct ctg cac atc act      2064
Leu His Trp Thr Met Trp Leu Gly Ile Phe Val Ala Leu His Ile Thr
            675             680             685

gcc gtc ttc ctc act ctg tat gaa tgg aag agt cca ttt ggt ttg act      2112
Ala Val Phe Leu Thr Leu Tyr Glu Trp Lys Ser Pro Phe Gly Leu Thr
    690             695             700

ccc aag ggg cga aat aga agt aaa gtc ttc tcc ttt tct tca gcc ttg      2160
Pro Lys Gly Arg Asn Arg Ser Lys Val Phe Ser Phe Ser Ser Ala Leu
705             710             715             720

aac atc tgt tat gcc ctc ttg ttt ggc aga aca gtg gcc atc aaa cct      2208
Asn Ile Cys Tyr Ala Leu Leu Phe Gly Arg Thr Val Ala Ile Lys Pro
            725             730             735

cca aaa tgt tgg act gga agg ttt cta atg aac ctt tgg gcc att ttc      2256
Pro Lys Cys Trp Thr Gly Arg Phe Leu Met Asn Leu Trp Ala Ile Phe
            740             745             750

tgt atg ttt tgc ctt tcc aca tac acg gca aac ttg gct gct gtc atg      2304
Cys Met Phe Cys Leu Ser Thr Tyr Thr Ala Asn Leu Ala Ala Val Met
        755             760             765

gta ggt gag aag atc tat gaa gag ctt tct gga ata cat gac ccc aag      2352
Val Gly Glu Lys Ile Tyr Glu Glu Leu Ser Gly Ile His Asp Pro Lys
    770             775             780

tta cat cat cct tcc caa gga ttc cgc ttt gga act gtc cga gaa agc      2400
Leu His His Pro Ser Gln Gly Phe Arg Phe Gly Thr Val Arg Glu Ser
785             790             795             800
```

47

```
agt gct gaa gat tat gtg aga caa agt ttc cca gag atg cat gaa tat      2448
Ser Ala Glu Asp Tyr Val Arg Gln Ser Phe Pro Glu Met His Glu Tyr
                805                     810                 815

atg aga agg tac aat gtt cca gcc acc cct gat gga gtg gag tat ctg      2496
Met Arg Arg Tyr Asn Val Pro Ala Thr Pro Asp Gly Val Glu Tyr Leu
                820                     825                 830

aag aat gat cca gag aaa cta gac gcc ttc atc atg gac aaa gcc ctt      2544
Lys Asn Asp Pro Glu Lys Leu Asp Ala Phe Ile Met Asp Lys Ala Leu
                835                     840                 845

ctg gat tat gaa gtg tca ata gat gct gac tgc aaa ctt ctc act gtg      2592
Leu Asp Tyr Glu Val Ser Ile Asp Ala Asp Cys Lys Leu Leu Thr Val
                850                     855                 860

ggg aag cca ttt gcc ata gaa gga tac ggc att ggc ctc cca ccc aac      2640
Gly Lys Pro Phe Ala Ile Glu Gly Tyr Gly Ile Gly Leu Pro Pro Asn
865                     870                     875                 880

tct cca ttg acc gcc aac ata tcc gag cta atc agt caa tac aag tca      2688
Ser Pro Leu Thr Ala Asn Ile Ser Glu Leu Ile Ser Gln Tyr Lys Ser
                885                     890                 895

cat ggg ttt atg gat atg ctc cat gac aag tgg tac agg gtg gtt ccc      2736
His Gly Phe Met Asp Met Leu His Asp Lys Trp Tyr Arg Val Val Pro
                900                     905                 910

tgt ggc aag aga agt ttt gct gtc acg gag act ttg caa atg ggc atc      2784
Cys Gly Lys Arg Ser Phe Ala Val Thr Glu Thr Leu Gln Met Gly Ile
                915                     920                 925

aaa cac ttc tct ggg ctc ttt gtg ctg ctg tgc att gga ttt ggt ctg      2832
Lys His Phe Ser Gly Leu Phe Val Leu Leu Cys Ile Gly Phe Gly Leu
        930                     935                     940

tcc att ttg acc acc att ggt gag cac ata gta tac agg ctg ctg cta      2880
Ser Ile Leu Thr Thr Ile Gly Glu His Ile Val Tyr Arg Leu Leu Leu
945                     950                     955                 960

cca cga atc aaa aac aaa tcc aag ctg caa tac tgg ctc cac acc agc      2928
Pro Arg Ile Lys Asn Lys Ser Lys Leu Gln Tyr Trp Leu His Thr Ser
                965                     970                 975

cag aga tta cac aga gca ata aat aca tca ttt ata gag gaa aag cag      2976
Gln Arg Leu His Arg Ala Ile Asn Thr Ser Phe Ile Glu Glu Lys Gln
                980                     985                 990

cag cat ttc aag acc aaa cgt gtg gaa aag agg tct aat gtg gga ccc      3024
Gln His Phe Lys Thr Lys Arg Val Glu Lys Arg Ser Asn Val Gly Pro
        995                     1000                1005

cgt cag ctt acc gta tgg aat act tcc aat ctg agt cat gac aac cga      3072
Arg Gln Leu Thr Val Trp Asn Thr Ser Asn Leu Ser His Asp Asn Arg
        1010                    1015                1020

cgg aaa tac atc ttt agt gat gag gaa gga caa aac cag ctg ggc atc      3120
Arg Lys Tyr Ile Phe Ser Asp Glu Glu Gly Gln Asn Gln Leu Gly Ile
1025                    1030                    1035                1040

cag atc cac cag gac atc ccc ctc cct cca agg aga aga gag ctc cct      3168
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48

```
Gln Ile His Gln Asp Ile Pro Leu Pro Pro Arg Arg Arg Glu Leu Pro
            1045            1050            1055

gcc ttg cgg acc acc aat ggg aaa gca gac tcc cta aat gta tct cgg     3216
Ala Leu Arg Thr Thr Asn Gly Lys Ala Asp Ser Leu Asn Val Ser Arg
            1060            1065            1070

aac tca gtg atg cag gaa ctc tca gag ctc gag aag cag att cag gtg     3264
Asn Ser Val Met Gln Glu Leu Ser Glu Leu Glu Lys Gln Ile Gln Val
            1075            1080            1085

atc cgt cag gag ctg cag ctg gct gtg agc agg aaa acg gag ctg gag     3312
Ile Arg Gln Glu Leu Gln Leu Ala Val Ser Arg Lys Thr Glu Leu Glu
        1090            1095            1100

gag tat caa agg aca agt cgg act tgt gag tcc tag gtgaccacac          3358
Glu Tyr Gln Arg Thr Ser Arg Thr Cys Glu Ser  *
1105            1110            1115

tgcttccctt tctcagttcc tgaccttcct ctgagccctt gagacacttt gtaatgctct   3418
tttgtaacta tcgacaaagg tgtggggaag ctgaggtcta ggtcttctta aaggtcaagt   3478
ctgctctccc tcgcctaaag tgcagcagca gctcctctca agctcactct ctaggtctcc   3538
agggtaggag tgttttttcta gcaagaatct tagtcaggag taagctctgt gcgagagatc   3598
tgtgaataac cagataaccc cagctgccgt taacctttc accaggtgcc acagtaatat    3658
ttctggtttt tagccctttc tctgcactac caacaagaga taaaattgtt actcacactt   3718
atgtcttact gggttgctgg ttttcatcgt aacacagaac gaggttatct agggttgtag   3778
cttttgatac aactccccga tctagattta ttcctacatt ctgaatgggg agcaggtaag   3838
agcagagcac ctcccactgg gggtgggggta tttaaaaatt aactcattag tatcataaac   3898
gtcaaggatt gattggacca ggcaagagcc atgtttttga gaaggttctg gatctctgac   3958
tccatcctga ctgtttagta agagcatgct tacaccctac tgtgaaaagg ggagggggatg   4018
tggtaagcag aaacagaaga caggcagcag aggcattaaa aatgcatacc atgctttcag   4078
aacaaaagct ctgggccaga aaggcaattt ggctaaaaaa tgaataagac tacttctaat   4138
gtaactaagc atctccacta tggtgtgtgc cttttataaa ggaaaaaaaa aaaaaaagg    4197

<210> 22
<211> 1115
<212> PRT
<213> Homo Sapiens

<400> 22
Met Arg Arg Leu Ser Leu Trp Trp Leu Leu Ser Arg Val Cys Leu Leu
 1            5                10                15
Leu Pro Pro Pro Cys Ala Leu Val Leu Ala Gly Val Pro Ser Ser Ser
            20                25                30
Ser His Pro Gln Pro Cys Gln Ile Leu Lys Arg Ile Gly His Ala Val
        35                40                45
Arg Val Gly Ala Val His Leu Gln Pro Trp Thr Thr Ala Pro Arg Ala
    50                55                60
Ala Ser Arg Ala Pro Asp Asp Ser Arg Ala Gly Ala Gln Arg Asp Glu
65                70                75                80
Pro Glu Pro Gly Thr Arg Arg Ser Pro Ala Pro Ser Pro Gly Ala Arg
            85                90                95
Trp Leu Gly Ser Thr Leu His Gly Arg Gly Pro Pro Gly Ser Arg Lys
            100                105                110
Pro Gly Glu Gly Ala Arg Ala Glu Ala Leu Trp Pro Arg Asp Ala Leu
        115                120                125
Leu Phe Ala Val Asp Asn Leu Asn Arg Val Glu Gly Leu Leu Pro Tyr
    130                135                140
Asn Leu Ser Leu Glu Val Val Met Ala Ile Glu Ala Gly Leu Gly Asp
145                150                155                160
Leu Pro Leu Leu Pro Phe Ser Ser Pro Ser Ser Pro Trp Ser Ser Asp
            165                170                175
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49

Pro Phe Ser Phe Leu Gln Ser Val Cys His Thr Val Val Val Gln Gly
            180   185   190
Val Ser Ala Leu Leu Ala Phe Pro Gln Ser Gln Gly Glu Met Met Glu
            195   200   205
Leu Asp Leu Val Ser Leu Val Leu His Ile Pro Val Ile Ser Ile Val
            210   215   220
Arg His Glu Phe Pro Arg Glu Ser Gln Asn Pro Leu His Leu Gln Leu
225   230   235   240
Ser Leu Glu Asn Ser Leu Ser Ser Asp Ala Asp Val Thr Val Ser Ile
                  245   250   255
Leu Thr Met Asn Asn Trp Tyr Asn Phe Ser Leu Leu Leu Cys Gln Glu
            260   265   270
Asp Trp Asn Ile Thr Asp Phe Leu Leu Leu Thr Gln Asn Asn Ser Lys
            275   280   285
Phe His Leu Gly Ser Ile Ile Asn Ile Thr Ala Asn Leu Pro Ser Thr
            290   295   300
Gln Asp Leu Leu Ser Phe Leu Gln Ile Gln Leu Glu Ser Ile Lys Asn
305   310   315   320
Ser Thr Pro Thr Val Val Met Phe Gly Cys Asp Met Glu Ser Ile Arg
  .   325   330   335
Arg Ile Phe Glu Ile Thr Thr Gln Phe Gly Val Met Pro Pro Glu Leu
            340   345   350
Arg Trp Val Leu Gly Asp Ser Gln Asn Met Glu Glu Leu Arg Thr Glu
            355   360   365
Gly Leu Pro Leu Gly Leu Ile Ala His Gly Lys Thr Thr Gln Ser Val
    370   375   380
Phe Glu His Tyr Val Gln Asp Ala Met Glu Leu Val Ala Arg Ala Val
385   390   395   400
Ala Thr Ala Thr Met Ile Gln Pro Glu Leu Ala Leu Ile Pro Ser Thr
            405   410   415
Met Asn Cys Met Glu Val Glu Thr Thr Asn Leu Thr Ser Gly Gln Tyr
            420   425   430
Leu Ser Arg Phe Leu Ala Asn Thr Thr Phe Arg Gly Leu Ser Gly Ser
            435   440   445
Ile Arg Val Lys Gly Ser Thr Ile Val Ser Ser Glu Asn Asn Phe Phe
    450   455   460
Ile Trp Asn Leu Gln His Asp Pro Met Gly Lys Pro Met Trp Thr Arg
465   470   475   480
Leu Gly Ser Trp Gln Gly Arg Lys Ile Val Met Asp Tyr Gly Ile Trp
            485   490   495
Pro Glu Gln Ala Gln Arg His Lys Thr His Phe Gln His Pro Ser Lys
            500   505   510
Leu His Leu Arg Val Val Thr Leu Ile Glu His Pro Phe Val Phe Thr
            515   520   525
Arg Glu Val Asp Asp Glu Gly Leu Cys Pro Ala Gly Gln Leu Cys Leu
    530   535   540
Asp Pro Met Thr Asn Asp Ser Ser Thr Leu Asp Ser Leu Phe Ser Ser
545   550   555   560
Leu His Ser Ser Asn Asp Thr Val Pro Ile Lys Phe Lys Lys Cys Cys
                  565   570   575
Tyr Gly Tyr Cys Ile Asp Leu Leu Glu Lys Ile Ala Glu Asp Met Asn
            580   585   590
Phe Asp Phe Asp Leu Tyr Ile Val Gly Asp Gly Lys Tyr Gly Ala Trp
            595   600   605
Lys Asn Gly His Trp Thr Gly Leu Val Gly Asp Leu Leu Arg Gly Thr
    610   615   620
Ala His Met Ala Val Thr Ser Phe Ser Ile Asn Thr Ala Arg Ser Gln
625   630   635   640
Val Ile Asp Phe Thr Ser Pro Phe Phe Ser Thr Ser Leu Gly Ile Leu
            645   650   655
Val Arg Thr Arg Asp Thr Ala Ala Pro Ile Gly Ala Phe Met Trp Pro
            660   665   670

50

```
Leu His Trp Thr Met Trp Leu Gly Ile Phe Val Ala Leu His Ile Thr
        675             680             685
Ala Val Phe Leu Thr Leu Tyr Glu Trp Lys Ser Pro Phe Gly Leu Thr
        690             695             700
Pro Lys Gly Arg Asn Arg Ser Lys Val Phe Ser Phe Ser Ser Ala Leu
705             710             715             720
Asn Ile Cys Tyr Ala Leu Leu Phe Gly Arg Thr Val Ala Ile Lys Pro
            725             730             735
Pro Lys Cys Trp Thr Gly Arg Phe Leu Met Asn Leu Trp Ala Ile Phe
            740             745             750
Cys Met Phe Cys Leu Ser Thr Tyr Thr Ala Asn Leu Ala Ala Val Met
        755             760             765
Val Gly Glu Lys Ile Tyr Glu Glu Leu Ser Gly Ile His Asp Pro Lys
    770             775             780
Leu His His Pro Ser Gln Gly Phe Arg Phe Gly Thr Val Arg Glu Ser
785             790             795             800
Ser Ala Glu Asp Tyr Val Arg Gln Ser Phe Pro Glu Met His Glu Tyr
            805             810             815
Met Arg Arg Tyr Asn Val Pro Ala Thr Pro Asp Gly Val Glu Tyr Leu
            820             825             830
Lys Asn Asp Pro Glu Lys Leu Asp Ala Phe Ile Met Asp Lys Ala Leu
        835             840             845
Leu Asp Tyr Glu Val Ser Ile Asp Ala Asp Cys Lys Leu Leu Thr Val
    850             855             860
Gly Lys Pro Phe Ala Ile Glu Gly Tyr Gly Ile Gly Leu Pro Pro Asn
865             870             875             880
Ser Pro Leu Thr Ala Asn Ile Ser Glu Leu Ile Ser Gln Tyr Lys Ser
            885             890             895
His Gly Phe Met Asp Met Leu His Asp Lys Trp Tyr Arg Val Val Pro
        900             905             910
Cys Gly Lys Arg Ser Phe Ala Val Thr Glu Thr Leu Gln Met Gly Ile
        915             920             925
Lys His Phe Ser Gly Leu Phe Val Leu Leu Cys Ile Gly Phe Gly Leu
    930             935             940
Ser Ile Leu Thr Thr Ile Gly Glu His Ile Val Tyr Arg Leu Leu Leu
945             950             955             960
Pro Arg Ile Lys Asn Lys Ser Lys Leu Gln Tyr Trp Leu His Thr Ser
            965             970             975
Gln Arg Leu His Arg Ala Ile Asn Thr Ser Phe Ile Glu Glu Lys Gln
            980             985             990
Gln His Phe Lys Thr Lys Arg Val Glu Lys Arg Ser Asn Val Gly Pro
        995             1000            1005
Arg Gln Leu Thr Val Trp Asn Thr Ser Asn Leu Ser His Asp Asn Arg
    1010            1015            1020
Arg Lys Tyr Ile Phe Ser Asp Glu Glu Gly Gln Asn Gln Leu Gly Ile
1025            1030            1035            1040
Gln Ile His Gln Asp Ile Pro Leu Pro Pro Arg Arg Arg Glu Leu Pro
            1045            1050            1055
Ala Leu Arg Thr Thr Asn Gly Lys Ala Asp Ser Leu Asn Val Ser Arg
            1060            1065            1070
Asn Ser Val Met Gln Glu Leu Ser Glu Leu Glu Lys Gln Ile Gln Val
            1075            1080            1085
Ile Arg Gln Glu Leu Gln Leu Ala Val Ser Arg Lys Thr Glu Leu Glu
    1090            1095            1100
Glu Tyr Gln Arg Thr Ser Arg Thr Cys Glu Ser
1105            1110            1115
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<222> (184)...(1830)

<221> misc_feature
<222> (1)...(2561)
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ctgctccagg gaggaagcgg cgcgggtgct gtccagcttc ccggtgctga aaaccggagg 120
gctcgtcatc caccactacc atgtaagggc catgagaagg gctcatcctg gcgcagcgcg 180
gac atg gag gag gac tta ttc cag cta agg cag ctg ccg gtt gtg aaa   228
    Met Glu Glu Asp Leu Phe Gln Leu Arg Gln Leu Pro Val Val Lys
    1   5   10   15

ttc cgt cgc aca ggc gag agt gca agg tca gag gac gac acg gct tca   276
Phe Arg Arg Thr Gly Glu Ser Ala Arg Ser Glu Asp Asp Thr Ala Ser
                20   25   30

gga gag cat gaa gtc cag att gaa ggg gtc cac gtg ggc cta gag gct   324
Gly Glu His Glu Val Gln Ile Glu Gly Val His Val Gly Leu Glu Ala
            35   40   45

gtg gag ctg gat gat ggg gca gct gtg ccc aag gag ttt gcc aat ccc   372
Val Glu Leu Asp Asp Gly Ala Ala Val Pro Lys Glu Phe Ala Asn Pro
        50   55   60

acc gat gat act ttc atg gtg gaa gat gca gtg gaa gcc att ggc ttt   420
Thr Asp Asp Thr Phe Met Val Glu Asp Ala Val Glu Ala Ile Gly Phe
    65   70   75

gga aaa ttt cag tgg aag ctg tct gtt ctc act ggc ttg gct tgg atg   468
Gly Lys Phe Gln Trp Lys Leu Ser Val Leu Thr Gly Leu Ala Trp Met
80   85   90   95

gct gat gcc atg gag atg atg atc ctc agc atc ctg gca cca cag ctg   516
Ala Asp Ala Met Glu Met Met Ile Leu Ser Ile Leu Ala Pro Gln Leu
                100   105   110

cat tgc gag tgg agg ctc cca agc tgg cag gtg gca ttg ctg acc tcg   564
His Cys Glu Trp Arg Leu Pro Ser Trp Gln Val Ala Leu Leu Thr Ser
            115   120   125

gtg gtc ttt gta ggc atg atg tcc agc tcc acg ctc tgg gga aat atc   612
Val Val Phe Val Gly Met Met Ser Ser Ser Thr Leu Trp Gly Asn Ile
        130   135   140

tca gac cag tac ggc agg aaa aca ggg ctg aag atc agc gtg ctg tgg   660
Ser Asp Gln Tyr Gly Arg Lys Thr Gly Leu Lys Ile Ser Val Leu Trp
    145   150   155

act ctg tac tat ggc atc ctt agt gca ttt gcg ccc gtg tat agc tgg   708
Thr Leu Tyr Tyr Gly Ile Leu Ser Ala Phe Ala Pro Val Tyr Ser Trp
160   165   170   175

atc ctg gtg ctc cgg ggc ctg gtg ggc ttc ggg atc gga gga gtt ccc   756
Ile Leu Val Leu Arg Gly Leu Val Gly Phe Gly Ile Gly Gly Val Pro
                180   185   190

cag tcg gtg acg ctg tat gcc gag ttc ctt ccc atg aaa gcc aga gct   804

52

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Gln Ser Val Thr Leu Tyr Ala Glu Phe Leu Pro Met Lys Ala Arg Ala
        195                     200                 205

aaa tgt att ttg ctg att gag gta ttc tgg gcc atc ggg aca gtg ttc    852
Lys Cys Ile Leu Leu Ile Glu Val Phe Trp Ala Ile Gly Thr Val Phe
        210                     215                 220

gag gtc gtc ctg gct gtg ttc gtg atg ccc agc ctg ggc tgg cgt tgg    900
Glu Val Val Leu Ala Val Phe Val Met Pro Ser Leu Gly Trp Arg Trp
        225                     230                 235

ctg ctc atc ctc tca gct gtc ccg ctc ctc ctc ttt gcc gtg ctg tgt    948
Leu Leu Ile Leu Ser Ala Val Pro Leu Leu Leu Phe Ala Val Leu Cys
240                 245                 250                 255

ttc tgg ctg cct gaa agt gca agg tat gat gtg ctg tca ggg aac cag    996
Phe Trp Leu Pro Glu Ser Ala Arg Tyr Asp Val Leu Ser Gly Asn Gln
                260                 265                 270

gaa aag gca atc gcc acc tta aag agg ata gca act gaa aac gga gct   1044
Glu Lys Ala Ile Ala Thr Leu Lys Arg Ile Ala Thr Glu Asn Gly Ala
                275                 280                 285

ccc atg ccg ctg ggg aaa ctc atc atc tcc aga cag gaa gac cga ggc   1092
Pro Met Pro Leu Gly Lys Leu Ile Ile Ser Arg Gln Glu Asp Arg Gly
            290                 295                 300

aaa atg agg gac ctt ttc aca ccc cat ttt aga tgg aca act ttg ctg   1140
Lys Met Arg Asp Leu Phe Thr Pro His Phe Arg Trp Thr Thr Leu Leu
        305                 310                 315

ctg tgg ttt ata tgg ttt tcc aat gca ttc tct tac tac ggg tta gtt   1188
Leu Trp Phe Ile Trp Phe Ser Asn Ala Phe Ser Tyr Tyr Gly Leu Val
320                 325                 330                 335

cta ctc acc aca gaa ctc ttc cag gca gga gat gtc tgc ggc atc tcc   1236
Leu Leu Thr Thr Glu Leu Phe Gln Ala Gly Asp Val Cys Gly Ile Ser
            340                 345                 350

agt cgg aag aag gct gta gag gca aaa tgc agc ctg gcc tgc gag tac   1284
Ser Arg Lys Lys Ala Val Glu Ala Lys Cys Ser Leu Ala Cys Glu Tyr
            355                 360                 365

ctg agt gag gag gat tac atg gac ttg ctg tgg acc acc ctc tct gag   1332
Leu Ser Glu Glu Asp Tyr Met Asp Leu Leu Trp Thr Thr Leu Ser Glu
            370                 375                 380

ttt cca ggt gtc ctt gtg act ctg tgg att att gac cgc ctg ggg cgc   1380
Phe Pro Gly Val Leu Val Thr Leu Trp Ile Ile Asp Arg Leu Gly Arg
        385                 390                 395

aag aag acc atg gcc ctg tgc ttt gtc atc ttc tcc ttc tgc agc ctc   1428
Lys Lys Thr Met Ala Leu Cys Phe Val Ile Phe Ser Phe Cys Ser Leu
400                 405                 410                 415

ctg ctg ttt atc tgt gtt gga aga aat gtg ctc act ctg tta ctc ttc   1476
Leu Leu Phe Ile Cys Val Gly Arg Asn Val Leu Thr Leu Leu Leu Phe
                420                 425                 430

att gca aga gcg ttt att tct gga ggc ttt caa gcg gca tat gtt tac   1524
Ile Ala Arg Ala Phe Ile Ser Gly Gly Phe Gln Ala Ala Tyr Val Tyr
                435                 440                 445
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53

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aca cct gag gtc tac ccc acg gca acg cgg gcc ctc ggc ctg ggc acc  1572
Thr Pro Glu Val Tyr Pro Thr Ala Thr Arg Ala Leu Gly Leu Gly Thr
        450              455               460

tgc agc ggc atg gca aga gtg ggt gct ctc atc act ccg ttc atc gcc  1620
Cys Ser Gly Met Ala Arg Val Gly Ala Leu Ile Thr Pro Phe Ile Ala
    465               470               475

cag gtg atg ctg gaa tcc tct gtg tac ctg act ctg gca gtt tac agt  1668
Gln Val Met Leu Glu Ser Ser Val Tyr Leu Thr Leu Ala Val Tyr Ser
480               485               490               495

ggc tgc tgc ctc ctg gct gcc ctg gcc tcc tgc ttt ttg ccc att gag  1716
Gly Cys Cys Leu Leu Ala Ala Leu Ala Ser Cys Phe Leu Pro Ile Glu
            500               505               510

acc aaa ggc gga gga ctg cag gag tcc agc cac cgg gag tgg ggc cag  1764
Thr Lys Gly Gly Gly Leu Gln Glu Ser Ser His Arg Glu Trp Gly Gln
        515               520               525

gag atg gtc ggc cga gga atg cac ggt gca ggt gtt acc agg tcg aac  1812
Glu Met Val Gly Arg Gly Met His Gly Ala Gly Val Thr Arg Ser Asn
        530               535               540

tct ggc tct cag gaa tag tgaccgatgg gggactgagc tggtctttga        1860
Ser Gly Ser Gln Glu  *
        545

ggctgcagag cttggggggc tggcaggccc caactggggc actgattgtc actgccgaca 1920
tcaagaactc acccaagagt atgacctgga ccaacagggt tttgtgtctt gactcagttt 1980
gctcatcttc attgaggtcc acccagggat ggggagatgt ttgctctagg gggttctctg 2040
tatatgtggt gaaagctttg ttcataacct gtggatctac atgggaagac tacccatatt 2100
aggagggtct ggtaatgcca gcaaccaatc agacaccacc cagagtcacc cggccaaacc 2160
ctcagtgaac aaccaaaata tctctctgta gataccgtcc aggctcaggc ccatgtgaca 2220
cctgctgtcc acccaccgga cctgttcagt aggtttctcc cacacccaca gccccaggct 2280
ttcttctttg aaattgcagg cgatctaggt gtggtctgag cagctatttc ctggcagggg 2340
ccccccggtt tgcctcccta gagcctgacc agtggattct ctggcagatg gacatggtgc 2400
attcaaactg gagccacatg cccccaccca gcccctnttg gagttgcccg ttgttggcac 2460
caagagatcc agatgtgtcc tggggacagc tgggtcttgc accaggtgac aacctcaaaa 2520
cgccgttacc ccctggggaa ctgaggactg agngccaagt g                    2561

<210> 24
<211> 548
<212> PRT
<213> Homo Sapiens

<400> 24
Met Glu Glu Asp Leu Phe Gln Leu Arg Gln Leu Pro Val Val Lys Phe
 1               5                10                15
Arg Arg Thr Gly Glu Ser Ala Arg Ser Glu Asp Asp Thr Ala Ser Gly
            20               25               30
Glu His Glu Val Gln Ile Glu Gly Val His Val Gly Leu Glu Ala Val
        35               40               45
Glu Leu Asp Asp Gly Ala Ala Val Pro Lys Glu Phe Ala Asn Pro Thr
    50               55               60
Asp Asp Thr Phe Met Val Glu Asp Ala Val Glu Ala Ile Gly Phe Gly
65               70               75               80
Lys Phe Gln Trp Lys Leu Ser Val Leu Thr Gly Leu Ala Trp Met Ala
            85               90               95
Asp Ala Met Glu Met Met Ile Leu Ser Ile Leu Ala Pro Gln Leu His
        100              105              110
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· 54

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Cys Glu Trp Arg Leu Pro Ser Trp Gln Val Ala Leu Leu Thr Ser Val
        115                 120                 125
Val Phe Val Gly Met Met Ser Ser Ser Thr Leu Trp Gly Asn Ile Ser
    130                 135                 140
Asp Gln Tyr Gly Arg Lys Thr Gly Leu Lys Ile Ser Val Leu Trp Thr
145                 150                 155                 160
Leu Tyr Tyr Gly Ile Leu Ser Ala Phe Ala Pro Val Tyr Ser Trp Ile
                165                 170                 175
Leu Val Leu Arg Gly Leu Val Gly Phe Gly Ile Gly Gly Val Pro Gln
            180                 185                 190
Ser Val Thr Leu Tyr Ala Glu Phe Leu Pro Met Lys Ala Arg Ala Lys
        195                 200                 205  .
Cys Ile Leu Leu Ile Glu Val Phe Trp Ala Ile Gly Thr Val Phe Glu
    210                 215                 220
Val Val Leu Ala Val Phe Val Met Pro Ser Leu Gly Trp Arg Trp Leu
225                 230                 235                 240
Leu Ile Leu Ser Ala Val Pro Leu Leu Leu Phe Ala Val Leu Cys Phe
                245                 250                 255
Trp Leu Pro Glu Ser Ala Arg Tyr Asp Val Leu Ser Gly Asn Gln Glu
            260                 265                 270
Lys Ala Ile Ala Thr Leu Lys Arg Ile Ala Thr Glu Asn Gly Ala Pro
        275                 280                 285
Met Pro Leu Gly Lys Leu Ile Ile Ser Arg Gln Glu Asp Arg Gly Lys
    290                 295                 300
Met Arg Asp Leu Phe Thr Pro His Phe Arg Trp Thr Thr Leu Leu Leu
305                 310                 315                 320
Trp Phe Ile Trp Phe Ser Asn Ala Phe Ser Tyr Tyr Gly Leu Val Leu
                325                 330                 335
Leu Thr Thr Glu Leu Phe Gln Ala Gly Asp Val Cys Gly Ile Ser Ser
            340                 345                 350
Arg Lys Lys Ala Val Glu Ala Lys Cys Ser Leu Ala Cys Glu Tyr Leu
        355                 360     .           365
Ser Glu Glu Asp Tyr Met Asp Leu Leu Trp Thr Thr Leu Ser Glu Phe
    370                 375                 380
Pro Gly Val Leu Val Thr Leu Trp Ile Ile Asp Arg Leu Gly Arg Lys
385                 390                 395                 400
Lys Thr Met Ala Leu Cys Phe Val Ile Phe Ser Phe Cys Ser Leu Leu
                405                 410                 415
Leu Phe Ile Cys Val Gly Arg Asn Val Leu Thr Leu Leu Leu Phe Ile
                420                 425             .   430
Ala Arg Ala Phe Ile Ser Gly Gly Phe Gln Ala Ala Tyr Val Tyr Thr
        435                 440                 445
Pro Glu Val Tyr Pro Thr Ala Thr Arg Ala Leu Gly Leu Gly Thr Cys
    450                 455                 460
Ser Gly Met Ala Arg Val Gly Ala Leu Ile Thr Pro Phe Ile Ala Gln
465                 470                 475                 480
Val Met Leu Glu Ser Ser Val Tyr Leu Thr Leu Ala Val Tyr Ser Gly
                485                 490                 495
Cys Cys Leu Leu Ala Ala Leu Ala Ser Cys Phe Leu Pro Ile Glu Thr
            500                 505                 510
Lys Gly Gly Gly Leu Gln Glu Ser Ser His Arg Glu Trp Gly Gln Glu
        515                 520                 525
Met Val Gly Arg Gly Met His Gly Ala Gly Val Thr Arg Ser Asn Ser
    530                 535                 540
Gly Ser Gln Glu
545
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<210> 25
<211> 2500
<212> DNA
<213> Homo Sapiens

55

<220>
<221> CDS
<222> (105)...(2258)

<400> 25
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gcagtgattc aggcctactt ctgaagagac agccttttat ctca atg aat gac aca 116
                                                   Met Asn Asp Thr
                                                    1

gaa aaa cca gca gat act ccc tct gag gaa gag gac ttt ggt gat cca   164
Glu Lys Pro Ala Asp Thr Pro Ser Glu Glu Glu Asp Phe Gly Asp Pro
 5   10   15   20

agg aca tat gac cca gat ttc aag ggg cct gtt gcc aac agg agt tgt   212
Arg Thr Tyr Asp Pro Asp Phe Lys Gly Pro Val Ala Asn Arg Ser Cys
                 25   30   35

aca gat gtt ctg tgc tgt atg atc ttc cta ctg tgt att att ggc tac   260
Thr Asp Val Leu Cys Cys Met Ile Phe Leu Leu Cys Ile Ile Gly Tyr
                 40   45   50

att gtt tta gga ctt gtg gcc tgg gta cat ggg gac ccc aga aga gca   308
Ile Val Leu Gly Leu Val Ala Trp Val His Gly Asp Pro Arg Arg Ala
             55   60   65

gcc tat cct aca gac agc cag ggc cac ttt tgt ggc cag aag ggc act   356
Ala Tyr Pro Thr Asp Ser Gln Gly His Phe Cys Gly Gln Lys Gly Thr
         70   75   80

ccc aat gag aac aag acc att ttg ttt tac ttt aac ctg tta cgc tgt   404
Pro Asn Glu Asn Lys Thr Ile Leu Phe Tyr Phe Asn Leu Leu Arg Cys
 85   90   95   100

acc agt ccc tcc gtg ttg cta aac cta cag tgc cct acc aca cag atc   452
Thr Ser Pro Ser Val Leu Leu Asn Leu Gln Cys Pro Thr Thr Gln Ile
                 105   110   115

tgt gtc tcc aag tgc cca gaa aaa ttt tta acc tat gtg gaa atg caa   500
Cys Val Ser Lys Cys Pro Glu Lys Phe Leu Thr Tyr Val Glu Met Gln
                 120   125   130

ctt ttg tac aca aaa gac aaa agc tac tgg gaa gac tac cgt cag ttc   548
Leu Leu Tyr Thr Lys Asp Lys Ser Tyr Trp Glu Asp Tyr Arg Gln Phe
             135   140   145

tgt aag acc act gct aag cct gtg aag tct ctc aca cag ctt tta ctg   596
Cys Lys Thr Thr Ala Lys Pro Val Lys Ser Leu Thr Gln Leu Leu Leu
     150   155   160

gat gat gat tgt cca aca gcg att ttt ccc agc aaa cct ttt ctc cag   644
Asp Asp Asp Cys Pro Thr Ala Ile Phe Pro Ser Lys Pro Phe Leu Gln
165   170   175   180

aga tgt ttc cct gac ttc tct acc aaa aat ggc act tta aca ata gga   692
Arg Cys Phe Pro Asp Phe Ser Thr Lys Asn Gly Thr Leu Thr Ile Gly
                 185   190   195

agt aag atg atg ttt caa gat gga aat gga ggg aca aga agt gtt gta   740
Ser Lys Met Met Phe Gln Asp Gly Asn Gly Gly Thr Arg Ser Val Val
                 200   205   210

56

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gaa ctc ggg att gct gca aat ggt atc aat aaa ctt ctt gat gca aag    788
Glu Leu Gly Ile Ala Ala Asn Gly Ile Asn Lys Leu Leu Asp Ala Lys
        215             220             225

tca ctt gga ttg aaa gtg ttt gaa gac tat gca aga act tgg tat tgg    836
Ser Leu Gly Leu Lys Val Phe Glu Asp Tyr Ala Arg Thr Trp Tyr Trp
        230             235             240

att ctt att ggc ctg acg atc gcc atg gtc ctt agt tgg ata ttt ttg    884
Ile Leu Ile Gly Leu Thr Ile Ala Met Val Leu Ser Trp Ile Phe Leu
245             250             255             260

ata ctt ctg agg ttc ata gct gga tgc ctc ttc tgg gtc ttc atg att    932
Ile Leu Leu Arg Phe Ile Ala Gly Cys Leu Phe Trp Val Phe Met Ile
            265             270             275

ggt gtg att gga att ata ggt tat gga ata tgg cac tgt tac cag cag    980
Gly Val Ile Gly Ile Ile Gly Tyr Gly Ile Trp His Cys Tyr Gln Gln
            280             285             290

tac acc aat ctt cag gaa cgc cca agt tct gta tta act atc tat gac   1028
Tyr Thr Asn Leu Gln Glu Arg Pro Ser Ser Val Leu Thr Ile Tyr Asp
            295             300             305

atc ggg att cag act aac ata agc atg tac ttt gaa ctg caa caa aca   1076
Ile Gly Ile Gln Thr Asn Ile Ser Met Tyr Phe Glu Leu Gln Gln Thr
    310             315             320

tgg ttc aca ttt atg ata ata ctc tgc atc att gaa gtg att gtc atc   1124
Trp Phe Thr Phe Met Ile Ile Leu Cys Ile Ile Glu Val Ile Val Ile
325             330             335             340

ctc atg ctg atc ttc ctc agg aat cga atc cga gtc gcc att atc ctg   1172
Leu Met Leu Ile Phe Leu Arg Asn Arg Ile Arg Val Ala Ile Ile Leu
            345             350             355

ctg aag gaa gga agc aaa gcc att gga tat gtt cct agt aca tta gtc   1220
Leu Lys Glu Gly Ser Lys Ala Ile Gly Tyr Val Pro Ser Thr Leu Val
            360             365             370

tat cca gct tta act ttc att ttg ctc tca atc tgc att tgc tac tgg   1268
Tyr Pro Ala Leu Thr Phe Ile Leu Leu Ser Ile Cys Ile Cys Tyr Trp
            375             380             385

gtc gtg aca gca gtt ttc ttg gcg aca tcg ggg gta cct gta tac aaa   1316
Val Val Thr Ala Val Phe Leu Ala Thr Ser Gly Val Pro Val Tyr Lys
            390             395             400

gtc ata gct cca ggg ggg cat tgt ata cat gaa aat caa acc tgt gac   1364
Val Ile Ala Pro Gly Gly His Cys Ile His Glu Asn Gln Thr Cys Asp
405             410             415             420

cca gag att ttt aat aca act gaa att gcc aaa gct tgc cct ggg gct   1412
Pro Glu Ile Phe Asn Thr Thr Glu Ile Ala Lys Ala Cys Pro Gly Ala
            425             430             435

ctg tgt aac ttt gct ttc tat ggt gga aag agc ttg tac cat cag tac   1460
Leu Cys Asn Phe Ala Phe Tyr Gly Gly Lys Ser Leu Tyr His Gln Tyr
            440             445             450

atc cct acc ttc cat gta tac aac tta ttt gtc ttt ctc tgg ctt ata   1508
Ile Pro Thr Phe His Val Tyr Asn Leu Phe Val Phe Leu Trp Leu Ile
```

57

```
Ile Pro Thr Phe His Val Tyr Asn Leu Phe Val Phe Leu Trp Leu Ile
        455             460             465

aac ttc gtc att gca tta ggt cag tgc gcc ctt gct ggt gca ttc gct    1556
Asn Phe Val Ile Ala Leu Gly Gln Cys Ala Leu Ala Gly Ala Phe Ala
        470             475             480

act tat tac tgg gcc atg aaa aaa cct gat gac atc cca cga tat cca    1604
Thr Tyr Tyr Trp Ala Met Lys Lys Pro Asp Asp Ile Pro Arg Tyr Pro
485             490             495             500

ctt ttt act gca ttt gga cga gcc ata cga tat cac aca gga tcc cta    1652
Leu Phe Thr Ala Phe Gly Arg Ala Ile Arg Tyr His Thr Gly Ser Leu
            505             510             515

gca ttt gga tct tta att att gca tta att caa atg ttt aaa att gta    1700
Ala Phe Gly Ser Leu Ile Ile Ala Leu Ile Gln Met Phe Lys Ile Val
            520             525             530

cta gaa tac ttg gac cac cgt ctt aaa cgt acc cag aac aca ttg tct    1748
Leu Glu Tyr Leu Asp His Arg Leu Lys Arg Thr Gln Asn Thr Leu Ser
        535             540             545

aaa ttc cta cag tgc tgc ctg aga tgc tgc ttc tgg tgt ttg gaa aat    1796
Lys Phe Leu Gln Cys Cys Leu Arg Cys Cys Phe Trp Cys Leu Glu Asn
        550             555             560

gca ata aag ttt tta aac aga aat gcc tat att atg att gca ata tat    1844
Ala Ile Lys Phe Leu Asn Arg Asn Ala Tyr Ile Met Ile Ala Ile Tyr
565             570             575             580

ggc aga aac ttc tgc agg tca gca aaa gat gct ttc aat ctg ctg atg    1892
Gly Arg Asn Phe Cys Arg Ser Ala Lys Asp Ala Phe Asn Leu Leu Met
            585             590             595

aga aat gtt ttg aaa gtt gca gtt aca gat gaa gtt aca tac ttt gta    1940
Arg Asn Val Leu Lys Val Ala Val Thr Asp Glu Val Thr Tyr Phe Val
            600             605             610

tta ttc ctg ggg aaa ctt cta gtt gct gga agt ata ggt gtt ctg gcc    1988
Leu Phe Leu Gly Lys Leu Leu Val Ala Gly Ser Ile Gly Val Leu Ala
            615             620             625

ttc cta ttc ttc aca caa aga ctg cca gtg att gca caa gga cca gca    2036
Phe Leu Phe Phe Thr Gln Arg Leu Pro Val Ile Ala Gln Gly Pro Ala
        630             635             640

tct tta aat tac tac tgg gta cct ttg ctg aca gtc att ttt ggg tct    2084
Ser Leu Asn Tyr Tyr Trp Val Pro Leu Leu Thr Val Ile Phe Gly Ser
645             650             655             660

tac ctg att gca cat ggg ttc ttc agc gtc tat gca atg tgt gtt gaa    2132
Tyr Leu Ile Ala His Gly Phe Phe Ser Val Tyr Ala Met Cys Val Glu
            665             670             675

aca att ttc atc tgc ttc ttg gaa gat tta gaa aga aat gat ggt tct    2180
Thr Ile Phe Ile Cys Phe Leu Glu Asp Leu Glu Arg Asn Asp Gly Ser
            680             685             690

act gca aga cct tat tat gtg agt caa cct ttg ctg aag att ttc cag    2228
Thr Ala Arg Pro Tyr Tyr Val Ser Gln Pro Leu Leu Lys Ile Phe Gln
            695             700             705
```

58

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gag gaa aat cca caa act agg aag cag tag aagagcaaac tggtcgtcct        2278
Glu Glu Asn Pro Gln Thr Arg Lys Gln  *
    710                 715


acagctgtgt gttacctttt ctccatctgc tgtgtctgtg caacatttgt ttcataagtg 2338
ctttgtgttt agcaacactg tattcacgac cttgttggct tgcatttgca tgtttttatac 2398
caaagcttat actgtactat gtgaagccat cagaagtcgc aagggaattg ttaataacat 2458
aaaacatttt tatactaaaa aaaaaaaaaa aagggcggcc gc                      2500


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<212> PRT
<213> Homo Sapiens


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Phe Gly Asp Pro Arg Thr Tyr Asp Pro Asp Phe Lys Gly Pro Val Ala
            20                  25                  30
Asn Arg Ser Cys Thr Asp Val Leu Cys Cys Met Ile Phe Leu Leu Cys
        35                  40                  45
Ile Ile Gly Tyr Ile Val Leu Gly Leu Val Ala Trp Val His Gly Asp
    50                  55                  60
Pro Arg Arg Ala Ala Tyr Pro Thr Asp Ser Gln Gly His Phe Cys Gly
65                  70                  75                  80
Gln Lys Gly Thr Pro Asn Glu Asn Lys Thr Ile Leu Phe Tyr Phe Asn
                85                  90                  95
Leu Leu Arg Cys Thr Ser Pro Ser Val Leu Leu Asn Leu Gln Cys Pro
            100                 105                 110
Thr Thr Gln Ile Cys Val Ser Lys Cys Pro Glu Lys Phe Leu Thr Tyr
        115                 120                 125
Val Glu Met Gln Leu Leu Tyr Thr Lys Asp Lys Ser Tyr Trp Glu Asp
    130                 135                 140
Tyr Arg Gln Phe Cys Lys Thr Thr Ala Lys Pro Val Lys Ser Leu Thr
145                 150                 155                 160
Gln Leu Leu Leu Asp Asp Asp Cys Pro Thr Ala Ile Phe Pro Ser Lys
                165                 170                 175
Pro Phe Leu Gln Arg Cys Phe Pro Asp Phe Ser Thr Lys Asn Gly Thr
            180                 185                 190
Leu Thr Ile Gly Ser Lys Met Met Phe Gln Asp Gly Asn Gly Gly Thr
            195                 200                 205
Arg Ser Val Val Glu Leu Gly Ile Ala Ala Asn Gly Ile Asn Lys Leu
    210                 215                 220
Leu Asp Ala Lys Ser Leu Gly Leu Lys Val Phe Glu Asp Tyr Ala Arg
225                 230                 235                 240
Thr Trp Tyr Trp Ile Leu Ile Gly Leu Thr Ile Ala Met Val Leu Ser
            245                 250                 255
Trp Ile Phe Leu Ile Leu Leu Arg Phe Ile Ala Gly Cys Leu Phe Trp
            260                 265                 270
Val Phe Met Ile Gly Val Ile Gly Ile Ile Gly Tyr Gly Ile Trp His
    275                 280                 285
Cys Tyr Gln Gln Tyr Thr Asn Leu Gln Glu Arg Pro Ser Ser Val Leu
    290                 295                 300
Thr Ile Tyr Asp Ile Gly Ile Gln Thr Asn Ile Ser Met Tyr Phe Glu
305                 310                 315                 320
Leu Gln Gln Thr Trp Phe Thr Phe Met Ile Ile Leu Cys Ile Ile Glu
            325                 330                 335
Val Ile Val Ile Leu Met Leu Ile Phe Leu Arg Asn Arg Ile Arg Val
            340                 345                 350
Ala Ile Ile Leu Leu Lys Glu Gly Ser Lys Ala Ile Gly Tyr Val Pro
    355                 360                 365
```

59

```
Ser Thr Leu Val Tyr Pro Ala Leu Thr Phe Ile Leu Leu Ser Ile Cys
    370                 375                 380
Ile Cys Tyr Trp Val Val Thr Ala Val Phe Leu Ala Thr Ser Gly Val
385                 390                 395                 400
Pro Val Tyr Lys Val Ile Ala Pro Gly Gly His Cys Ile His Glu Asn
                405                 410                 415
Gln Thr Cys Asp Pro Glu Ile Phe Asn Thr Thr Glu Ile Ala Lys Ala
                420                 425                 430
Cys Pro Gly Ala Leu Cys Asn Phe Ala Phe Tyr Gly Gly Lys Ser Leu
            435                 440                 445
Tyr His Gln Tyr Ile Pro Thr Phe His Val Tyr Asn Leu Phe Val Phe
    450                 455                 460
Leu Trp Leu Ile Asn Phe Val Ile Ala Leu Gly Gln Cys Ala Leu Ala
465                 470                 475                 480
Gly Ala Phe Ala Thr Tyr Tyr Trp Ala Met Lys Lys Pro Asp Asp Ile
                485                 490                 495
Pro Arg Tyr Pro Leu Phe Thr Ala Phe Gly Arg Ala Ile Arg Tyr His
                500                 505                 510
Thr Gly Ser Leu Ala Phe Gly Ser Leu Ile Ile Ala Leu Ile Gln Met
            515                 520                 525
Phe Lys Ile Val Leu Glu Tyr Leu Asp His Arg Leu Lys Arg Thr Gln
    530                 535                 540
Asn Thr Leu Ser Lys Phe Leu Gln Cys Cys Leu Arg Cys Cys Phe Trp
545                 550                 555                 560
Cys Leu Glu Asn Ala Ile Lys Phe Leu Asn Arg Asn Ala Tyr Ile Met
                565                 570                 575
Ile Ala Ile Tyr Gly Arg Asn Phe Cys Arg Ser Ala Lys Asp Ala Phe
            580                 585                 590
Asn Leu Leu Met Arg Asn Val Leu Lys Val Ala Val Thr Asp Glu Val
    595                 600                 605
Thr Tyr Phe Val Leu Phe Leu Gly Lys Leu Leu Val Ala Gly Ser Ile
    610                 615                 620
Gly Val Leu Ala Phe Leu Phe Phe Thr Gln Arg Leu Pro Val Ile Ala
625                 630                 635                 640
Gln Gly Pro Ala Ser Leu Asn Tyr Tyr Trp Val Pro Leu Leu Thr Val
            645                 650                 655
Ile Phe Gly Ser Tyr Leu Ile Ala His Gly Phe Phe Ser Val Tyr Ala
            660                 665                 670
Met Cys Val Glu Thr Ile Phe Ile Cys Phe Leu Glu Asp Leu Glu Arg
    675                 680                 685
Asn Asp Gly Ser Thr Ala Arg Pro Tyr Tyr Val Ser Gln Pro Leu Leu
    690                 695                 700
Lys Ile Phe Gln Glu Glu Asn Pro Gln Thr Arg Lys Gln
705                 710                 715


<210> 27
<211> 2763
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<220>
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                                    Met Gly Ser Val Gly Ser Gln
                                    1               5


cgc ctt gag gag ccc agc gtg gca ggc aca cca gac ccg ggc gta gtg   102
Arg Leu Glu Glu Pro Ser Val Ala Gly Thr Pro Asp Pro Gly Val Val
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60

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atg agc ttc acc ttc gac agt cac cag ctg gag gag gcg gcg gag gcg    150
Met Ser Phe Thr Phe Asp Ser His Gln Leu Glu Glu Ala Ala Glu Ala
     25                      30                      35

gct cag ggc cag ggc ctt agg gcc agg ggc gtc cca gct ttc acg gat    198
Ala Gln Gly Gln Gly Leu Arg Ala Arg Gly Val Pro Ala Phe Thr Asp
 40                  45                  50                      55

act aca ttg gac gag cca gtg ccc gat gac cgt tat cac gcc atc tac    246
Thr Thr Leu Asp Glu Pro Val Pro Asp Asp Arg Tyr His Ala Ile Tyr
                 60                  65                      70

ttt gcg atg ctg ctg gct ggc gtg ggc ttc ctg ctg cca tac aac agc    294
Phe Ala Met Leu Leu Ala Gly Val Gly Phe Leu Leu Pro Tyr Asn Ser
             75                  80                  85

ttc atc acg gac gtg gac tac ctg cat cac aag tac cca ggg acc tcc    342
Phe Ile Thr Asp Val Asp Tyr Leu His His Lys Tyr Pro Gly Thr Ser
             90                  95                 100

atc gtg ttt gac atg agc ctc acc tac atc ttg gtg gca ctg gca gct    390
Ile Val Phe Asp Met Ser Leu Thr Tyr Ile Leu Val Ala Leu Ala Ala
    105                 110                 115

gtc ctc ctg aac aac gtc ctg gtg gag aga ctg acc ctg cac acc agg    438
Val Leu Leu Asn Asn Val Leu Val Glu Arg Leu Thr Leu His Thr Arg
120                 125                 130                 135

atc acc gca ggc tac ctc tta gcc ttg ggc cct ctc ctt ttt atc agc    486
Ile Thr Ala Gly Tyr Leu Leu Ala Leu Gly Pro Leu Leu Phe Ile Ser
                140                 145                 150

atc tgc gac gtg tgg ctg cag ctc ttc tct cgg gac cag gcc tac gcc    534
Ile Cys Asp Val Trp Leu Gln Leu Phe Ser Arg Asp Gln Ala Tyr Ala
            155                 160                 165

atc aac ctg gcc gct gtg ggc acc gtg gcc ttc ggc tgc aca gtg cag    582
Ile Asn Leu Ala Ala Val Gly Thr Val Ala Phe Gly Cys Thr Val Gln
        170                 175                 180

caa tcc agc ttc tac ggg tac acg ggg atg ctg ccc aag cgg tac acg    630
Gln Ser Ser Phe Tyr Gly Tyr Thr Gly Met Leu Pro Lys Arg Tyr Thr
    185                 190                 195

cag ggg gtg atg acc ggg gag agc acg gcg ggc gtg atg atc tct ctg    678
Gln Gly Val Met Thr Gly Glu Ser Thr Ala Gly Val Met Ile Ser Leu
200                 205                 210                 215

agc cgc atc ctc acg aag ctg ctg ctg ccc gac gag cgc gcc agc acg    726
Ser Arg Ile Leu Thr Lys Leu Leu Leu Pro Asp Glu Arg Ala Ser Thr
                220                 225                 230

ctc atc ttc ttc ctg gtg tcg gtg gcg ctg gag ctg ctg tgt ttc ctg    774
Leu Ile Phe Phe Leu Val Ser Val Ala Leu Glu Leu Leu Cys Phe Leu
            235                 240                 245

ctg cac ctg tta gtg cgg cgc agc cgc ttc gtg ctc ttc tat acc aca    822
Leu His Leu Leu Val Arg Arg Ser Arg Phe Val Leu Phe Tyr Thr Thr
        250                 255                 260
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cgg ccg cgt gac agc cac cgg ggc agg cca ggc ctg ggc agg ggc tat    870
Arg Pro Arg Asp Ser His Arg Gly Arg Pro Gly Leu Gly Arg Gly Tyr
    265                     270                 275

ggc tac cgc gtg cac cac gac gtt gtc gcc ggg gac gtc cac ttc gag    918
Gly Tyr Arg Val His His Asp Val Val Ala Gly Asp Val His Phe Glu
280                     285                 290                 295

cac cca gcc ccg gcc ctg gcc ccc aac gag tcc cca aag gac agc cca    966
His Pro Ala Pro Ala Leu Ala Pro Asn Glu Ser Pro Lys Asp Ser Pro
                300                 305                 310

gcc cac gag gtg acc ggc agc ggc ggg gcc tac atg cgc ttt gac gtg   1014
Ala His Glu Val Thr Gly Ser Gly Gly Ala Tyr Met Arg Phe Asp Val
                315                 320                 325

ccg cgg cca agg gtc cag cgc agc tgg ccc acc ttc aga gcc ctg tta   1062
Pro Arg Pro Arg Val Gln Arg Ser Trp Pro Thr Phe Arg Ala Leu Leu
                330                 335                 340

ctg cac cgc tac gtg gtg gcg cgg gtg atc tgg gcc gac atg ctc tcc   1110
Leu His Arg Tyr Val Val Ala Arg Val Ile Trp Ala Asp Met Leu Ser
    345                     350                 355

atc gcc gtg acc tac ttc atc acg ctg tgc ctg ttc ccc ggc ctc gag   1158
Ile Ala Val Thr Tyr Phe Ile Thr Leu Cys Leu Phe Pro Gly Leu Glu
360                     365                 370                 375

tct gag atc cgc cac tgc atc ctg ggc gag tgg ctg ccc atc ctc atc   1206
Ser Glu Ile Arg His Cys Ile Leu Gly Glu Trp Leu Pro Ile Leu Ile
                380                 385                 390

atg gct gtg ttc aac ctg tca gac ttc gtg ggc aag atc ctg gca gcc   1254
Met Ala Val Phe Asn Leu Ser Asp Phe Val Gly Lys Ile Leu Ala Ala
                395                 400                 405

ctg ccc gtg gac tgg cgg ggc acc cac ctg ctg gcc tgc tcc tgc ctg   1302
Leu Pro Val Asp Trp Arg Gly Thr His Leu Leu Ala Cys Ser Cys Leu
                410                 415                 420

cgt gtg gtc ttc atc ccc ctc ttc atc ctg tgc gtc tac ccc agc ggc   1350
Arg Val Val Phe Ile Pro Leu Phe Ile Leu Cys Val Tyr Pro Ser Gly
    425                     430                 435

atg ccc gcc ctc cgt cac ccc gcc tgg ccc tgc atc ttc tca ctg ctc   1398
Met Pro Ala Leu Arg His Pro Ala Trp Pro Cys Ile Phe Ser Leu Leu
440                     445                 450                 455

atg ggc atc agc aac ggc tac ttc ggc agc gtg ccc atg atc ctg gcg   1446
Met Gly Ile Ser Asn Gly Tyr Phe Gly Ser Val Pro Met Ile Leu Ala
                460                 465                 470

gca ggc aaa gtg agc ccc aag cag cgg gag ctg gca ggg aac acc atg   1494
Ala Gly Lys Val Ser Pro Lys Gln Arg Glu Leu Ala Gly Asn Thr Met
                475                 480                 485

acc gtg tcc tac atg tca ggg ctg. acg ctg ggg tcc gcc gtg gcc tac   1542
Thr Val Ser Tyr Met Ser Gly Leu Thr Leu Gly Ser Ala Val Ala Tyr
                490                 495                 500

tgc acc tac agc ctc acc cgc gac gct cac ggc agc tgc ctg cac gcc   1590
Cys Thr Tyr Ser Leu Thr Arg Asp Ala His Gly Ser Cys Leu His Ala
```

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                505                    510                    515
tcc acc gcc aat ggt tcc atc ctc gca ggc ctc tga gccagccccg          1636
Ser Thr Ala Asn Gly Ser Ile Leu Ala Gly Leu *
520                 525                 530

cccactgcca gggacgccga gggcctgacc aggggccccg aggcctgagg gcccctcccc 1696
tgtccccacc tcagtgcctg cggggccctg agcctccccc tgtgccagca gccccactcc 1756
ctcagggtcc agccatgccc caccctggac tgaagttctg caaagtcctc cgaggaccgg 1816
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tgcgtctacc ttccatctgt gtccagcggc cccggctcca gcccagccag cactctgcag 1936
ggtcacacgc accgtgtccc cacccaggac agcagacacc cgccagagtg tgcgcgccca 1996
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ctgccctgtt tcacccctgc tgtgtcccat cccccgtctg tccactaact gtaccgcacc 2716
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<210> 28
<211> 530
<212> PRT
<213> Homo Sapiens

<400> 28
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Met Gly Ser Val Gly Ser Gln Arg Leu Glu Glu Pro Ser Val Ala Gly
 1               5                  10                  15
Thr Pro Asp Pro Gly Val Val Met Ser Phe Thr Phe Asp Ser His Gln
            20                  25                  30
Leu Glu Glu Ala Ala Glu Ala Ala Gln Gly Gln Gly Leu Arg Ala Arg
        35                  40                  45
Gly Val Pro Ala Phe Thr Asp Thr Thr Leu Asp Glu Pro Val Pro Asp
    50                  55                  60
Asp Arg Tyr His Ala Ile Tyr Phe Ala Met Leu Leu Ala Gly Val Gly
65                  70                  75                  80
Phe Leu Leu Pro Tyr Asn Ser Phe Ile Thr Asp Val Asp Tyr Leu His
                85                  90                  95
His Lys Tyr Pro Gly Thr Ser Ile Val Phe Asp Met Ser Leu Thr Tyr
            100                 105                 110
Ile Leu Val Ala Leu Ala Ala Val Leu Leu Asn Asn Val Leu Val Glu
        115                 120                 125
Arg Leu Thr Leu His Thr Arg Ile Thr Ala Gly Tyr Leu Leu Ala Leu
    130                 135                 140
Gly Pro Leu Leu Phe Ile Ser Ile Cys Asp Val Trp Leu Gln Leu Phe
145                 150                 155                 160
Ser Arg Asp Gln Ala Tyr Ala Ile Asn Leu Ala Ala Val Gly Thr Val
                165                 170                 175
Ala Phe Gly Cys Thr Val Gln Gln Ser Ser Phe Tyr Gly Tyr Thr Gly
            180                 185                 190
Met Leu Pro Lys Arg Tyr Thr Gln Gly Val Met Thr Gly Glu Ser Thr
        195                 200                 205
Ala Gly Val Met Ile Ser Leu Ser Arg Ile Leu Thr Lys Leu Leu Leu
    210                 215                 220
Pro Asp Glu Arg Ala Ser Thr Leu Ile Phe Phe Leu Val Ser Val Ala
225                 230                 235                 240
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63

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Leu Glu Leu Leu Cys Phe Leu Leu His Leu Leu Val Arg Arg Ser Arg
                    245             250             255
Phe Val Leu Phe Tyr Thr Thr Arg Pro Arg Asp Ser His Arg Gly Arg
                260             265             270
Pro Gly Leu Gly Arg Gly Tyr Gly Tyr Arg Val His His Asp Val Val
            275             280             285
Ala Gly Asp Val His Phe Glu His Pro Ala Pro Ala Leu Ala Pro Asn
    290             295             300
Glu Ser Pro Lys Asp Ser Pro Ala His Glu Val Thr Gly Ser Gly Gly
305             310             315             320
Ala Tyr Met Arg Phe Asp Val Pro Arg Pro Arg Val Gln Arg Ser Trp
            325             330             335
Pro Thr Phe Arg Ala Leu Leu Leu His Arg Tyr Val Val Ala Arg Val
            340             345             350
Ile Trp Ala Asp Met Leu Ser Ile Ala Val Thr Tyr Phe Ile Thr Leu
            355             360             365
Cys Leu Phe Pro Gly Leu Glu Ser Glu Ile Arg His Cys Ile Leu Gly
    370             375             380
Glu Trp Leu Pro Ile Leu Ile Met Ala Val Phe Asn Leu Ser Asp Phe
385             390             395             400
Val Gly Lys Ile Leu Ala Ala Leu Pro Val Asp Trp Arg Gly Thr His
            405             410             415
Leu Leu Ala Cys Ser Cys Leu Arg Val Val Phe Ile Pro Leu Phe Ile
            420             425             430
Leu Cys Val Tyr Pro Ser Gly Met Pro Ala Leu Arg His Pro Ala Trp
            435             440             445
Pro Cys Ile Phe Ser Leu Leu Met Gly Ile Ser Asn Gly Tyr Phe Gly
    450             455             460
Ser Val Pro Met Ile Leu Ala Ala Gly Lys Val Ser Pro Lys Gln Arg
465             470             475             480
Glu Leu Ala Gly Asn Thr Met Thr Val Ser Tyr Met Ser Gly Leu Thr
            485             490             495
Leu Gly Ser Ala Val Ala Tyr Cys Thr Tyr Ser Leu Thr Arg Asp Ala
            500             505             510
His Gly Ser Cys Leu His Ala Ser Thr Ala Asn Gly Ser Ile Leu Ala
            515             520             525
Gly Leu
    530
```

```
cgccgggggc gggaggggggc ggggggagca cgccagccgc cgagagtggg gggcg atg   58
                                                             Met
                                                             1

gcg aag ctc cgg gtg gct tac gag tac acg gaa gcc gag gac aag agc   106
Ala Lys Leu Arg Val Ala Tyr Glu Tyr Thr Glu Ala Glu Asp Lys Ser
            5               10              15

atc cgg ctc ggc ttg ttt ctc atc atc tcc ggc gtc gtg tcg ctc ttc   154
Ile Arg Leu Gly Leu Phe Leu Ile Ile Ser Gly Val Val Ser Leu Phe
            20              25              30
```

```
atc ttc ggc ttc tgc tgg ctg agt ccc gcg ctg cag gat ctg caa gcc   202
Ile Phe Gly Phe Cys Trp Leu Ser Pro Ala Leu Gln Asp Leu Gln Ala
     35                  40                  45

acg gag gcc aat tgc acg gtg ctg tcg gtg cag cag atc ggc gag gtg   250
Thr Glu Ala Asn Cys Thr Val Leu Ser Val Gln Gln Ile Gly Glu Val
 50                  55                  60                  65

ttc gag tgc acc ttc acc tgt ggc gcc gac tgc agg ggc acc tcg cag   298
Phe Glu Cys Thr Phe Thr Cys Gly Ala Asp Cys Arg Gly Thr Ser Gln
                 70                  75                  80

tac ccc tgc gtc cag gtc tac gtg aac aac tct gag tcc aac tct agg   346
Tyr Pro Cys Val Gln Val Tyr Val Asn Asn Ser Glu Ser Asn Ser Arg
             85                  90                  95

gcg ctg ctg cac agc gac gag cac cag ctc ctg acc aac ccc aag tgc   394
Ala Leu Leu His Ser Asp Glu His Gln Leu Leu Thr Asn Pro Lys Cys
         100                 105                 110

tcc tat atc cct ccc tgt aag aga gaa aat cag aag aat ttg gaa agt   442
Ser Tyr Ile Pro Pro Cys Lys Arg Glu Asn Gln Lys Asn Leu Glu Ser
     115                 120                 125

gtc atg aat tgg caa cag tac tgg aaa gat gag att ggt tcc cag cca   490
Val Met Asn Trp Gln Gln Tyr Trp Lys Asp Glu Ile Gly Ser Gln Pro
130                 135                 140                 145

ttt act tgc tat ttt aat caa cat caa aga cca gat gat gtg ctt ctg   538
Phe Thr Cys Tyr Phe Asn Gln His Gln Arg Pro Asp Asp Val Leu Leu
             150                 155                 160

cat cgc act cat gat gag att gtc ctc ctg cat tgc ttc ctc tgg ccc   586
His Arg Thr His Asp Glu Ile Val Leu Leu His Cys Phe Leu Trp Pro
             165                 170                 175

ctg gtg aca ttt gtg gtg ggc gtt ctc att gtg gtc ctg acc atc tgt   634
Leu Val Thr Phe Val Val Gly Val Leu Ile Val Val Leu Thr Ile Cys
             180                 185                 190

gcc aag agc ttg gcg gtc aag gcg gaa gcc atg aag aag cgc aag ttc   682
Ala Lys Ser Leu Ala Val Lys Ala Glu Ala Met Lys Lys Arg Lys Phe
     195                 200                 205

tct taa aggggaagga ggcttgtaga aagcaaagta cagaagctgt actcatcggc   738
Ser  *
210

acgcgtccac ctgcggaacc tgtgtttcct ggcgcaggag atggacaggg ccacgacagg   798
gctctgagag gctcatccct cagtggcaac agaaacaggc acaactggaa gacttggaac   858
ctcaaagctt gtattccatc tgctgtagca atggctaaag ggtcaagatc ttagctgtat   918
ggagtaacta tttcagaaaa ccctataaga agttcatttt ctttcaaaag taacagtata   978
ttatttgtac agtgtagtat acaaaccatt atgatttatg ctacttaaaa atattaaaat  1038
agagtggtct gtgttatttt ctatttcctt ttttatgctt agaacaccag ggttaaaaaa  1098
aaaaaaaaa                                                         1107

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<212> PRT
<213> Homo Sapiens

<400> 30
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65

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Met Ala Lys Leu Arg Val Ala Tyr Glu Tyr Thr Glu Ala Glu Asp Lys
 1               5               10              15
Ser Ile Arg Leu Gly Leu Phe Leu Ile Ile Ser Gly Val Val Ser Leu
            20              25              30
Phe Ile Phe Gly Phe Cys Trp Leu Ser Pro Ala Leu Gln Asp Leu Gln
        35              40              45
Ala Thr Glu Ala Asn Cys Thr Val Leu Ser Val Gln Gln Ile Gly Glu
    50              55              60
Val Phe Glu Cys Thr Phe Thr Cys Gly Ala Asp Cys Arg Gly Thr Ser
65              70              75              80
Gln Tyr Pro Cys Val Gln Val Tyr Val Asn Asn Ser Glu Ser Asn Ser
            85              90              95
Arg Ala Leu Leu His Ser Asp Glu His Gln Leu Leu Thr Asn Pro Lys
            100             105             110
Cys Ser Tyr Ile Pro Pro Cys Lys Arg Glu Asn Gln Lys Asn Leu Glu
        115             120             125
Ser Val Met Asn Trp Gln Gln Tyr Trp Lys Asp Glu Ile Gly Ser Gln
    130             135             140
Pro Phe Thr Cys Tyr Phe Asn Gln His Gln Arg Pro Asp Asp Val Leu
145             150             155             160
Leu His Arg Thr His Asp Glu Ile Val Leu Leu His Cys Phe Leu Trp
            165             170             175
Pro Leu Val Thr Phe Val Val Gly Val Leu Ile Val Val Leu Thr Ile
            180             185             190
Cys Ala Lys Ser Leu Ala Val Lys Ala Glu Ala Met Lys Lys Arg Lys
            195             200             205
Phe Ser
    210


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aattccgggc ccgccggacc ccgagctgct gggagg atg acc atg gct ggg ggc      54
                                        Met Thr Met Ala Gly Gly
                                         1               5

agg agg gga cta gtg gcc cct caa aac acg ttt ctg gag aat att gtt     102
Arg Arg Gly Leu Val Ala Pro Gln Asn Thr Phe Leu Glu Asn Ile Val
            10              15              20

cgg cgg tcc aat gat act aat ttt gtg ttg ggg aat gct cag ata gtg     150
Arg Arg Ser Asn Asp Thr Asn Phe Val Leu Gly Asn Ala Gln Ile Val
        25              30              35

gac tgg cct att gtg tac agc aat gat gga ttt tgc aag ctg tct ggc     198
Asp Trp Pro Ile Val Tyr Ser Asn Asp Gly Phe Cys Lys Leu Ser Gly
    40              45              50

tat cac agg gca gaa gtg atg caa aaa agc agc acc tgc agt ttt atg     246
Tyr His Arg Ala Glu Val Met Gln Lys Ser Ser Thr Cys Ser Phe Met
55              60              65              70

tat ggg gag ctg act gat aaa gac acg att gaa aaa gtg cgg caa aca     294
Tyr Gly Glu Leu Thr Asp Lys Asp Thr Ile Glu Lys Val Arg Gln Thr
```

66

```
ttt gag aac tat gag atg aat tcc ttt gaa att ctg atg tac aag aag   342
Phe Glu Asn Tyr Glu Met Asn Ser Phe Glu Ile Leu Met Tyr Lys Lys
            90                  95                  100

aac agg aca cct gtg tgg ttc ttt gtg aaa att gct cca att cga aac   390
Asn Arg Thr Pro Val Trp Phe Phe Val Lys Ile Ala Pro Ile Arg Asn
        105                 110                 115

gaa cag gat aaa gtg gtt tta ttt ctt tgc act ttc agt gac ata aca   438
Glu Gln Asp Lys Val Val Leu Phe Leu Cys Thr Phe Ser Asp Ile Thr
    120                 125                 130

gct ttc aaa cag cca att gag gat gat tca tgt aaa ggc tgg ggg aag   486
Ala Phe Lys Gln Pro Ile Glu Asp Asp Ser Cys Lys Gly Trp Gly Lys
135                 140                 145                 150

ttt gct cgg ctg aca aga gca ctg aca agc agc agg ggt gtc ctg cag   534
Phe Ala Arg Leu Thr Arg Ala Leu Thr Ser Ser Arg Gly Val Leu Gln
                155                 160                 165

cag ctg gct cca agc gtg caa aaa ggc gag aat gtc cac aag cac tcc   582
Gln Leu Ala Pro Ser Val Gln Lys Gly Glu Asn Val His Lys His Ser
                170                 175                 180

cgc ctg gca gag gtc cta cag ctg ggc tca gac atc ctt ccc cag tac   630
Arg Leu Ala Glu Val Leu Gln Leu Gly Ser Asp Ile Leu Pro Gln Tyr
        185                 190                 195

aag caa gag gca cca aag act ccc cct cac atc atc tta cat tat tgt   678
Lys Gln Glu Ala Pro Lys Thr Pro Pro His Ile Ile Leu His Tyr Cys
    200                 205                 210

gtt ttt aag acc acg tgg gat tgg atc atc ttg atc ttg acc ttc tat   726
Val Phe Lys Thr Thr Trp Asp Trp Ile Ile Leu Ile Leu Thr Phe Tyr
215                 220                 225                 230

aca gcc atc ttg gtc cct tat aat gtc tcc ttc aaa acc agg cag aat   774
Thr Ala Ile Leu Val Pro Tyr Asn Val Ser Phe Lys Thr Arg Gln Asn
                235                 240                 245

aat gtg gcc tgg ctg gtt gtt gat agc atc gtg gat gtt atc ttt ttg   822
Asn Val Ala Trp Leu Val Val Asp Ser Ile Val Asp Val Ile Phe Leu
                250                 255                 260

gtg gac att gtg ctc aat ttt cat acc acc ttt gtt gga cca gca ggg   870
Val Asp Ile Val Leu Asn Phe His Thr Thr Phe Val Gly Pro Ala Gly
        265                 270                 275

gag gtg att tct gac ccc aaa ctt atc cgc atg aac tac ctg aag acg   918
Glu Val Ile Ser Asp Pro Lys Leu Ile Arg Met Asn Tyr Leu Lys Thr
    280                 285                 290

tgg ttt gtg att gac ctt ctg tcc tgt ttg cca tat gat gtc atc aac   966
Trp Phe Val Ile Asp Leu Leu Ser Cys Leu Pro Tyr Asp Val Ile Asn
295                 300                 305                 310

gct ttt gag aac gtg gat gag gtt agt gcc ttt atg ggt gat cca ggg   1014
Ala Phe Glu Asn Val Asp Glu Val Ser Ala Phe Met Gly Asp Pro Gly
            315                 320                 325
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67

```
aag att ggt ttt gct gat cag att cca cca cca ctg gag ggg aga gag    1062
Lys Ile Gly Phe Ala Asp Gln Ile Pro Pro Pro Leu Glu Gly Arg Glu
            330                 335                 340

agt cag ggc atc agc agc ctg ttc agc tct cta aaa gtt gtc cgg ctg    1110
Ser Gln Gly Ile Ser Ser Leu Phe Ser Ser Leu Lys Val Val Arg Leu
            345                 350                 355

ctc cgt ctt ggg cga gtg gcc cgt aag ctg gac cac tac att gaa tat    1158
Leu Arg Leu Gly Arg Val Ala Arg Lys Leu Asp His Tyr Ile Glu Tyr
    360                 365                 370

gga gct gct gtg ctg gtc ctg ctg gtg tgt gtg ttt ggg ctg gct gca    1206
Gly Ala Ala Val Leu Val Leu Leu Val Cys Val Phe Gly Leu Ala Ala
375                 380                 385                 390

cac tgg atg gcc tgc atc tgg tac agc att ggg gac tat gag atc ttt    1254
His Trp Met Ala Cys Ile Trp Tyr Ser Ile Gly Asp Tyr Glu Ile Phe
                395                 400                 405

gac gag gac acc aag aca atc cgc aac aac agc tgg ctg tac caa cta    1302
Asp Glu Asp Thr Lys Thr Ile Arg Asn Asn Ser Trp Leu Tyr Gln Leu
            410                 415                 420

gcg atg gac att ggc acc cct tac cag ttt aat ggg tct ggc tca ggg    1350
Ala Met Asp Ile Gly Thr Pro Tyr Gln Phe Asn Gly Ser Gly Ser Gly
            425                 430                 435

aag tgg gaa ggt ggt ccc agc aag aat tct gtc tac atc tcc tcg ttg    1398
Lys Trp Glu Gly Gly Pro Ser Lys Asn Ser Val Tyr Ile Ser Ser Leu
    440                 445                 450

tat ttc aca atg acc agc ctc acc agt gtg ggc ttt ggg aac atc gcc    1446
Tyr Phe Thr Met Thr Ser Leu Thr Ser Val Gly Phe Gly Asn Ile Ala
455                 460                 465                 470

cca tcc aca gac att gag aag atc ttt gca gtg gcc atc atg atg att    1494
Pro Ser Thr Asp Ile Glu Lys Ile Phe Ala Val Ala Ile Met Met Ile
            475                 480                 485

ggc tca ctt ctc tat gcc acc atc ttc ggg aat gtg acg act att ttc    1542
Gly Ser Leu Leu Tyr Ala Thr Ile Phe Gly Asn Val Thr Thr Ile Phe
            490                 495                 500

caa cag atg tat gcc aac acc aac aga tac cat gag atg ctc aac agt    1590
Gln Gln Met Tyr Ala Asn Thr Asn Arg Tyr His Glu Met Leu Asn Ser
            505                 510                 515

gtt cgg gac ttc ctg aag ctc tac cag gtg cca aaa gga ttg agt gag    1638
Val Arg Asp Phe Leu Lys Leu Tyr Gln Val Pro Lys Gly Leu Ser Glu
    520                 525                 530

cga gta atg gat tat att gtg tcc act tgg tcc atg tcc aga ggc att    1686
Arg Val Met Asp Tyr Ile Val Ser Thr Trp Ser Met Ser Arg Gly Ile
535                 540                 545                 550

gac aca gag aag gtc ctg cag atc tgc ccc aag gac atg aga gcc gac    1734
Asp Thr Glu Lys Val Leu Gln Ile Cys Pro Lys Asp Met Arg Ala Asp
            555                 560                 565

atc tgc gtg cac ctg aac cgc aag gtg ttc aag gag cac ccg gcc ttc    1782
Ile Cys Val His Leu Asn Arg Lys Val Phe Lys Glu His Pro Ala Phe
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68

```
cgg ctg gcc agt gat ggc tgc ctc cgg gca ctg gcc atg gag ttc cag   1830
Arg Leu Ala Ser Asp Gly Cys Leu Arg Ala Leu Ala Met Glu Phe Gln
        585                 590                 595

acg gtg cac tgt gcc cca ggg gac ctc atc tac cat gca gga gag agc   1878
Thr Val His Cys Ala Pro Gly Asp Leu Ile Tyr His Ala Gly Glu Ser
    600                 605                 610

gtt gac agc ctc tgc ttt gtg gtt tct ggc tcc ctg gag gtg atc caa   1926
Val Asp Ser Leu Cys Phe Val Val Ser Gly Ser Leu Glu Val Ile Gln
615                 620                 625                 630

gat gat gag gtg gtg gcc att cta gga aaa gga gac gtg ttt gga gat   1974
Asp Asp Glu Val Val Ala Ile Leu Gly Lys Gly Asp Val Phe Gly Asp
                635                 640                 645

gtg ttc tgg aag gaa gcc acc ctt gcc cag tcc tgt gcc aat gtt agg   2022
Val Phe Trp Lys Glu Ala Thr Leu Ala Gln Ser Cys Ala Asn Val Arg
            650                 655                 660

gcc ttg acc tac tgt gat ctg cat gtg atc aag cgg gat gcc ctg cag   2070
Ala Leu Thr Tyr Cys Asp Leu His Val Ile Lys Arg Asp Ala Leu Gln
            665                 670                 675

aaa gtg ctg gaa ttc tac acg gcc ttc tcc cat tcc ttc tcc cgg aac   2118
Lys Val Leu Glu Phe Tyr Thr Ala Phe Ser His Ser Phe Ser Arg Asn
    680                 685                 690

ctg att ctg acg tac aac ttg agg aag agg att gtg ttc cgg aag atc   2166
Leu Ile Leu Thr Tyr Asn Leu Arg Lys Arg Ile Val Phe Arg Lys Ile
695                 700                 705                 710

agc gat gtg aaa cgt gaa gag gaa gaa cgc atg aaa cga aag aat gag   2214
Ser Asp Val Lys Arg Glu Glu Glu Glu Arg Met Lys Arg Lys Asn Glu
                715                 720                 725

gcc ccc ctg atc ttg ccc ccg gac cac cct gtc cgg cgc ctc ttc cag   2262
Ala Pro Leu Ile Leu Pro Pro Asp His Pro Val Arg Arg Leu Phe Gln
                730                 735                 740

aga ttc cga cag cag aaa gag gcc agg ctg gca gct gag aga ggg ggc   2310
Arg Phe Arg Gln Gln Lys Glu Ala Arg Leu Ala Ala Glu Arg Gly Gly
            745                 750                 755

cgg gac ctg gat gac cta gat gtg gag aag ggc aat gtc ctt aca gag   2358
Arg Asp Leu Asp Asp Leu Asp Val Glu Lys Gly Asn Val Leu Thr Glu
    760                 765                 770

cat gcc tcc gcc aac cac agc ctc gtg aag gcc agc gtg gtc acc gtg   2406
His Ala Ser Ala Asn His Ser Leu Val Lys Ala Ser Val Val Thr Val
775                 780                 785                 790

cgt gag agt cct gcc acg ccc gta tcc ttc cag gca gcc tcc acc tcc   2454
Arg Glu Ser Pro Ala Thr Pro Val Ser Phe Gln Ala Ala Ser Thr Ser
            795                 800                 805

ggg gtg cca gac cac gca aag cta cag gcg cca ggg tcc gag tgc ctg   2502
Gly Val Pro Asp His Ala Lys Leu Gln Ala Pro Gly Ser Glu Cys Leu
            810                 815                 820
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69

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ggc ccc aag ggg ggc ggg ggc gat tgt gcc aag cgc aaa agc tgg gcc      2550
Gly Pro Lys Gly Gly Gly Gly Asp Cys Ala Lys Arg Lys Ser Trp Ala
        825             830             835

cgc ttc aaa gat gct tgc ggg aag agt gag gac tgg aac aag gtg tcc      2598
Arg Phe Lys Asp Ala Cys Gly Lys Ser Glu Asp Trp Asn Lys Val Ser
        840             845             850

aag gct gag tcg atg gag aca ctt ccc gag agg aca aaa gcg tca ggc      2646
Lys Ala Glu Ser Met Glu Thr Leu Pro Glu Arg Thr Lys Ala Ser Gly
855             860             865             870

gag gcc aca ctg aag aag aca gac tcg tgt gac agt ggc atc acc aag      2694
Glu Ala Thr Leu Lys Lys Thr Asp Ser Cys Asp Ser Gly Ile Thr Lys
            875             880             885

agc gac ttg cgc ctg gac aac gtg ggt gag gcc agg agt ccc cag gat      2742
Ser Asp Leu Arg Leu Asp Asn Val Gly Glu Ala Arg Ser Pro Gln Asp
            890             895             900

cgg agt ccc atc ctg gca gag gtc aag cat tcg ttc tac ccc atc cct      2790
Arg Ser Pro Ile Leu Ala Glu Val Lys His Ser Phe Tyr Pro Ile Pro
        905             910             915

gag cag acg ctg cag gcc aca gtc ctg gag gtg agg cac gag ctg aag      2838
Glu Gln Thr Leu Gln Ala Thr Val Leu Glu Val Arg His Glu Leu Lys
        920             925             930

gag gac atc aag gcc tta aac gcc aaa atg acc aat att gag aaa cag      2886
Glu Asp Ile Lys Ala Leu Asn Ala Lys Met Thr Asn Ile Glu Lys Gln
935             940             945             950

ctc tct gag ata ctc agg ata tta act tcc aga aga tcc tct cag tct      2934
Leu Ser Glu Ile Leu Arg Ile Leu Thr Ser Arg Arg Ser Ser Gln Ser
            955             960             965

cct cag gag ttg ttt gaa ata tcg agg cca cag tcc cca gaa tca gag      2982
Pro Gln Glu Leu Phe Glu Ile Ser Arg Pro Gln Ser Pro Glu Ser Glu
            970             975             980

aga gac att ttt gga gcc agc tga gaggtctatt taaaaaaaaa gtcagagaca     3036
Arg Asp Ile Phe Gly Ala Ser  *
            985

gatacctcca accctgccgt caccaccacc cctaccaccc ggaattc               3083
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Phe Leu Glu Asn Ile Val Arg Arg Ser Asn Asp Thr Asn Phe Val Leu
            20                  25                  30
Gly Asn Ala Gln Ile Val Asp Trp Pro Ile Val Tyr Ser Asn Asp Gly
        35                  40                  45
Phe Cys Lys Leu Ser Gly Tyr His Arg Ala Glu Val Met Gln Lys Ser
        50                  55                  60
Ser Thr Cys Ser Phe Met Tyr Gly Glu Leu Thr Asp Lys Asp Thr Ile
65                  70                  75                  80
```

70

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Glu Lys Val Arg Gln Thr Phe Glu Asn Tyr Glu Met Asn Ser Phe Glu
                85                  90                  95
Ile Leu Met Tyr Lys Lys Asn Arg Thr Pro Val Trp Phe Phe Val Lys
            100             105             110
Ile Ala Pro Ile Arg Asn Glu Gln Asp Lys Val Val Leu Phe Leu Cys
        115             120             125
Thr Phe Ser Asp Ile Thr Ala Phe Lys Gln Pro Ile Glu Asp Asp Ser
    130             135             140
Cys Lys Gly Trp Gly Lys Phe Ala Arg Leu Thr Arg Ala Leu Thr Ser
145             150             155             160
Ser Arg Gly Val Leu Gln Gln Leu Ala Pro Ser Val Gln Lys Gly Glu
            165             170             175
Asn Val His Lys His Ser Arg Leu Ala Glu Val Leu Gln Leu Gly Ser
        180             185             190
Asp Ile Leu Pro Gln Tyr Lys Gln Glu Ala Pro Lys Thr Pro Pro His
        195             200             205
Ile Ile Leu His Tyr Cys Val Phe Lys Thr Thr Trp Asp Trp Ile Ile
    210             215             220
Leu Ile Leu Thr Phe Tyr Thr Ala Ile Leu Val Pro Tyr Asn Val Ser
225             230             235             240
Phe Lys Thr Arg Gln Asn Asn Val Ala Trp Leu Val Val Asp Ser Ile
            245             250             255
Val Asp Val Ile Phe Leu Val Asp Ile Val Leu Asn Phe His Thr Thr
            260             265             270
Phe Val Gly Pro Ala Gly Glu Val Ile Ser Asp Pro Lys Leu Ile Arg
            275             280             285
Met Asn Tyr Leu Lys Thr Trp Phe Val Ile Asp Leu Leu Ser Cys Leu
    290             295             300
Pro Tyr Asp Val Ile Asn Ala Phe Glu Asn Val Asp Glu Val Ser Ala
305             310             315             320
Phe Met Gly Asp Pro Gly Lys Ile Gly Phe Ala Asp Gln Ile Pro Pro
            325             330             335
Pro Leu Glu Gly Arg Glu Ser Gln Gly Ile Ser Ser Leu Phe Ser Ser
            340             345             350
Leu Lys Val Val Arg Leu Leu Arg Leu Gly Arg Val Ala Arg Lys Leu
    355             360             365
Asp His Tyr Ile Glu Tyr Gly Ala Ala Val Leu Val Leu Leu Val Cys
    370             375             380
Val Phe Gly Leu Ala Ala His Trp Met Ala Cys Ile Trp Tyr Ser Ile
385             390             395             400
Gly Asp Tyr Glu Ile Phe Asp Glu Asp Thr Lys Thr Ile Arg Asn Asn
            405             410             415
Ser Trp Leu Tyr Gln Leu Ala Met Asp Ile Gly Thr Pro Tyr Gln Phe
            420             425             430
Asn Gly Ser Gly Ser Gly Lys Trp Glu Gly Gly Pro Ser Lys Asn Ser
            435             440             445
Val Tyr Ile Ser Ser Leu Tyr Phe Thr Met Thr Ser Leu Thr Ser Val
    450             455             460
Gly Phe Gly Asn Ile Ala Pro Ser Thr Asp Ile Glu Lys Ile Phe Ala
465             470             475             480
Val Ala Ile Met Met Ile Gly Ser Leu Leu Tyr Ala Thr Ile Phe Gly
            485             490             495
Asn Val Thr Thr Ile Phe Gln Gln Met Tyr Ala Asn Thr Asn Arg Tyr
            500             505             510
His Glu Met Leu Asn Ser Val Arg Asp Phe Leu Lys Leu Tyr Gln Val
            515             520             525
Pro Lys Gly Leu Ser Glu Arg Val Met Asp Tyr Ile Val Ser Thr Trp
    530             535             540
Ser Met Ser Arg Gly Ile Asp Thr Glu Lys Val Leu Gln Ile Cys Pro
545             550             555             560
Lys Asp Met Arg Ala Asp Ile Cys Val His Leu Asn Arg Lys Val Phe
            565             570             575
```

71

```
Lys Glu His Pro Ala Phe Arg Leu Ala Ser Asp Gly Cys Leu Arg Ala
            580                 585                 590
Leu Ala Met Glu Phe Gln Thr Val His Cys Ala Pro Gly Asp Leu Ile
            595                 600                 605
Tyr His Ala Gly Glu Ser Val Asp Ser Leu Cys Phe Val Val Ser Gly
    610                 615                 620
Ser Leu Glu Val Ile Gln Asp Asp Glu Val Val Ala Ile Leu Gly Lys
625                 630                 635                 640
Gly Asp Val Phe Gly Asp Val Phe Trp Lys Glu Ala Thr Leu Ala Gln
                645                 650                 655
Ser Cys Ala Asn Val Arg Ala Leu Thr Tyr Cys Asp Leu His Val Ile
            660                 665                 670
Lys Arg Asp Ala Leu Gln Lys Val Leu Glu Phe Tyr Thr Ala Phe Ser
            675                 680                 685
His Ser Phe Ser Arg Asn Leu Ile Leu Thr Tyr Asn Leu Arg Lys Arg
    690                 695                 700
Ile Val Phe Arg Lys Ile Ser Asp Val Lys Arg Glu Glu Glu Glu Arg
705                 710                 715                 720
Met Lys Arg Lys Asn Glu Ala Pro Leu Ile Leu Pro Pro Asp His Pro
            725                 730                 735
Val Arg Arg Leu Phe Gln Arg Phe Arg Gln Gln Lys Glu Ala Arg Leu
            740                 745                 750
Ala Ala Glu Arg Gly Gly Arg Asp Leu Asp Asp Leu Asp Val Glu Lys
            755                 760                 765
Gly Asn Val Leu Thr Glu His Ala Ser Ala Asn His Ser Leu Val Lys
    770                 775                 780
Ala Ser Val Val Thr Val Arg Glu Ser Pro Ala Thr Pro Val Ser Phe
785                 790                 795                 800
Gln Ala Ala Ser Thr Ser Gly Val Pro Asp His Ala Lys Leu Gln Ala
            805                 810                 815
Pro Gly Ser Glu Cys Leu Gly Pro Lys Gly Gly Gly Gly Asp Cys Ala
            820                 825                 830
Lys Arg Lys Ser Trp Ala Arg Phe Lys Asp Ala Cys Gly Lys Ser Glu
            835                 840                 845
Asp Trp Asn Lys Val Ser Lys Ala Glu Ser Met Glu Thr Leu Pro Glu
    850                 855                 860
Arg Thr Lys Ala Ser Gly Glu Ala Thr Leu Lys Lys Thr Asp Ser Cys
865                 870                 875                 880
Asp Ser Gly Ile Thr Lys Ser Asp Leu Arg Leu Asp Asn Val Gly Glu
            885                 890                 895
Ala Arg Ser Pro Gln Asp Arg Ser Pro Ile Leu Ala Glu Val Lys His
            900                 905                 910
Ser Phe Tyr Pro Ile Pro Glu Gln Thr Leu Gln Ala Thr Val Leu Glu
            915                 920                 925
Val Arg His Glu Leu Lys Glu Asp Ile Lys Ala Leu Asn Ala Lys Met
    930                 935                 940
Thr Asn Ile Glu Lys Gln Leu Ser Glu Ile Leu Arg Ile Leu Thr Ser
945                 950                 955                 960
Arg Arg Ser Ser Gln Ser Pro Gln Glu Leu Phe Glu Ile Ser Arg Pro
                965                 970                 975
Gln Ser Pro Glu Ser Glu Arg Asp Ile Phe Gly Ala Ser
            980                 985
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72

<400> 33

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accctgaaga ccacccaggt gggagtgtaa ataaccttc cagataaaga gttgctgcta 120
ccaaaagagt gctgacacca tcacagtatg ttcccttctc aaccctggac atggttcaga 180
aacagctaaa gcagacaaga atctggggca gccaatattg taccacctgc caaagcttgg 240
cacaaacaat ctggaagcca aaaattgcac atactgtgga acagagcaag tggttctggc 300
ctccctggga tttggatcct ggtttccaga gctaagaaca caaagtc atg aag gtg 356
                                                   Met Lys Val
                                                    1
```

```
aag gag gag aag gct ggg gta gga aag ctg gac cac act aac cac agg   404
Lys Glu Glu Lys Ala Gly Val Gly Lys Leu Asp His Thr Asn His Arg
     5                   10              15
```

```
agg aga ttt ccg gat cag aaa gaa tgc cct cct atc cac att ggg ctt   452
Arg Arg Phe Pro Asp Gln Lys Glu Cys Pro Pro Ile His Ile Gly Leu
 20              25              30                  35
```

```
cca gta ccc act tac cct caa aga aaa act gac cag aag gga cat ctt   500
Pro Val Pro Thr Tyr Pro Gln Arg Lys Thr Asp Gln Lys Gly His Leu
             40              45                  50
```

```
tca ggc ctg caa aaa gtc cac tgg ggc ctg cgg cca gac cag cca cag   548
Ser Gly Leu Gln Lys Val His Trp Gly Leu Arg Pro Asp Gln Pro Gln
         55              60                  65
```

```
cag gaa ctg act ggc cca ggg agt ggg gca agc agc cag gac agc agc   596
Gln Glu Leu Thr Gly Pro Gly Ser Gly Ala Ser Ser Gln Asp Ser Ser
         70              75                  80
```

```
atg gat ctt atc agc agg act cgg tcc cca gct gct gag cag ctc cag   644
Met Asp Leu Ile Ser Arg Thr Arg Ser Pro Ala Ala Glu Gln Leu Gln
     85              90                  95
```

```
gac atc ctg ggg gag gaa gat gag gct ccc aac ccc acc ctc ttt aca   692
Asp Ile Leu Gly Glu Glu Asp Glu Ala Pro Asn Pro Thr Leu Phe Thr
100             105             110                 115
```

```
gag atg gat act ctg cag cat gac gga gac cag atg gag tgg aag gag   740
Glu Met Asp Thr Leu Gln His Asp Gly Asp Gln Met Glu Trp Lys Glu
             120             125                 130
```

```
tca gcc agg tgg ata aag ttt gaa gaa aag gta gag gaa ggc ggc gaa   788
Ser Ala Arg Trp Ile Lys Phe Glu Glu Lys Val Glu Glu Gly Gly Glu
             135             140                 145
```

```
cgc tgg agc aag ccc cac gtg tcc aca cta tcc ctg cac agc ctc ttc   836
Arg Trp Ser Lys Pro His Val Ser Thr Leu Ser Leu His Ser Leu Phe
             150             155                 160
```

```
gag ctc cgt acc tgc ctg cag acg ggg acg gtg ctg ctg gat ttg gac   884
Glu Leu Arg Thr Cys Leu Gln Thr Gly Thr Val Leu Leu Asp Leu Asp
     165             170                 175
```

```
agt ggc tcc tta cca cag atc ata gat gat gtc att gag aag cag att   932
Ser Gly Ser Leu Pro Gln Ile Ile Asp Asp Val Ile Glu Lys Gln Ile
180                 185             190                 195
```

```
gag gat ggt ctc ctg cgg cca gag ctc cgg gag agg gtc agt tac gtc   980
Glu Asp Gly Leu Leu Arg Pro Glu Leu Arg Glu Arg Val Ser Tyr Val
             200             205                 210
```

73

```
ctc ctg agg agg cac cgc cac caa acc aag aag ccc atc cac cgc tcc    1028
Leu Leu Arg Arg His Arg His Gln Thr Lys Lys Pro Ile His Arg Ser
            215                 220                 225

tta gct gac att ggg aag tca gtc tcc acc aca aat cgc agt cct gcc    1076
Leu Ala Asp Ile Gly Lys Ser Val Ser Thr Thr Asn Arg Ser Pro Ala
            230                 235                 240

cgg agc cct ggt gct ggc ccg agt cta cac cac tcc acg gaa gac ctg    1124
Arg Ser Pro Gly Ala Gly Pro Ser Leu His His Ser Thr Glu Asp Leu
            245                 250                 255

cgg atg cgg cag agt gca aat tac gga cgt ctg tgt cat gcc cag agc    1172
Arg Met Arg Gln Ser Ala Asn Tyr Gly Arg Leu Cys His Ala Gln Ser
260                 265                 270                 275

aga agc atg aat gac att tct ctc acc cca aac aca gac cag cgg aaa    1220
Arg Ser Met Asn Asp Ile Ser Leu Thr Pro Asn Thr Asp Gln Arg Lys
            280                 285                 290

aac aaa ttc atg aag aag atc ccc aag gac tca gaa gcg tcc aac gtg    1268
Asn Lys Phe Met Lys Lys Ile Pro Lys Asp Ser Glu Ala Ser Asn Val
            295                 300                 305

ctc gtg ggc gag gtg gac ttc cta gac cag cca ttc atc gcg ttc gtg    1316
Leu Val Gly Glu Val Asp Phe Leu Asp Gln Pro Phe Ile Ala Phe Val
            310                 315                 320

cgc ctc atc cag tcg gcc atg ctg gga gga gtg acc gag gtg cct gtc    1364
Arg Leu Ile Gln Ser Ala Met Leu Gly Gly Val Thr Glu Val Pro Val
            325                 330                 335

ccc acc aga ttt ctg ttt ata cta ctg gga cct tct ggg aga gca aaa    1412
Pro Thr Arg Phe Leu Phe Ile Leu Leu Gly Pro Ser Gly Arg Ala Lys
340                 345                 350                 355

tcc tac aat gaa att ggc cgt gcc att gca acc ctc atg gta gat gat    1460
Ser Tyr Asn Glu Ile Gly Arg Ala Ile Ala Thr Leu Met Val Asp Asp
            360                 365                 370

ctc ttc agt gac gtg gcc tac aaa gcc cgc aat cgg gaa gat ctg atc    1508
Leu Phe Ser Asp Val Ala Tyr Lys Ala Arg Asn Arg Glu Asp Leu Ile
            375                 380                 385

gca gga att gat gaa ttt ctg gat gag gtc atc gtc ctt cct cct gga    1556
Ala Gly Ile Asp Glu Phe Leu Asp Glu Val Ile Val Leu Pro Pro Gly
            390                 395                 400

gaa tgg gac cca aat atc cgg att gag ccc ccc aag aag gtg ccc tct    1604
Glu Trp Asp Pro Asn Ile Arg Ile Glu Pro Pro Lys Lys Val Pro Ser
            405                 410                 415

gct gac aag agg aaa tct gtg ttc tcc cta gca gag ctg ggc cag atg    1652
Ala Asp Lys Arg Lys Ser Val Phe Ser Leu Ala Glu Leu Gly Gln Met
420                 425                 430                 435

aat ggc tct gtg gga gga ggc ggc gga gct cct gga gga ggc aat gga    1700
Asn Gly Ser Val Gly Gly Gly Gly Gly Ala Pro Gly Gly Gly Asn Gly
            440                 445                 450

ggt ggt ggt ggt ggt ggc agt ggc ggc ggg gct ggc agt ggc ggg gcc    1748
```

74

```
Gly Gly Gly Gly Gly Gly Ser Gly Gly Gly Ala Gly Ser Gly Gly Ala
            455                 460                 465

ggc gga aca agc agc ggg gat gat gga gag atg cca gcc atg cat gaa    1796
Gly Gly Thr Ser Ser Gly Asp Asp Gly Glu Met Pro Ala Met His Glu
            470                 475                 480

atc ggg gag gaa ctt atc tgg aca gga agg ttc ttc ggt ggc ctg tgt    1844
Ile Gly Glu Glu Leu Ile Trp Thr Gly Arg Phe Phe Gly Gly Leu Cys
    485                 490                 495

ctg gat atc aag agg aag ttg ccc tgg ttc cca agt gac ttc tat gat    1892
Leu Asp Ile Lys Arg Lys Leu Pro Trp Phe Pro Ser Asp Phe Tyr Asp
500                 505                 510                 515

ggc ttc cac att cag tcc atc tct gcc atc cta ttc atc tac ctc ggc    1940
Gly Phe His Ile Gln Ser Ile Ser Ala Ile Leu Phe Ile Tyr Leu Gly
            520                 525                 530

tgt atc acc aac gcg atc acc ttt ggt ggg ctt ctg ggg gat gcc acc    1988
Cys Ile Thr Asn Ala Ile Thr Phe Gly Gly Leu Leu Gly Asp Ala Thr
            535                 540                 545

gac aat tat cag gga gtg atg gag agc ttc ctg ggc act gcc atg gct    2036
Asp Asn Tyr Gln Gly Val Met Glu Ser Phe Leu Gly Thr Ala Met Ala
            550                 555                 560

ggc tcc ttg ttc tgc ctc ttc tcg gga cag cct ctc atc att ctc agc    2084
Gly Ser Leu Phe Cys Leu Phe Ser Gly Gln Pro Leu Ile Ile Leu Ser
    565                 570                 575

agc acg ggg ccc atc ctc atc ttt gag aag ctc ctc ttc gac ttc agc    2132
Ser Thr Gly Pro Ile Leu Ile Phe Glu Lys Leu Leu Phe Asp Phe Ser
580                 585                 590                 595

aaa ggc aat ggc ctg gac tac atg gag ttc cgc ctc tgg att ggc cta    2180
Lys Gly Asn Gly Leu Asp Tyr Met Glu Phe Arg Leu Trp Ile Gly Leu
            600                 605                 610

cac tca gct gtc cag tgc ctt atc cta gtg gcc aca gat gcc agc ttt    2228
His Ser Ala Val Gln Cys Leu Ile Leu Val Ala Thr Asp Ala Ser Phe
            615                 620                 625

atc atc aaa tat atc acc cgc ttc acc gag gag ggc ttc tcc acc ctt    2276
Ile Ile Lys Tyr Ile Thr Arg Phe Thr Glu Glu Gly Phe Ser Thr Leu
            630                 635                 640

atc agc ttc atc ttc atc tac gat gcc atc aag aag atg atc ggt gcc    2324
Ile Ser Phe Ile Phe Ile Tyr Asp Ala Ile Lys Lys Met Ile Gly Ala
            645                 650                 655

ttc aag tac tac cct atc aat atg gac ttc aag cca aac ttc atc act    2372
Phe Lys Tyr Tyr Pro Ile Asn Met Asp Phe Lys Pro Asn Phe Ile Thr
660                 665                 670                 675

acc tac aag tgc gag tgt gtc gcc cct gac aca gtg aat aca acc gtg    2420
Thr Tyr Lys Cys Glu Cys Val Ala Pro Asp Thr Val Asn Thr Thr Val
            680                 685                 690

ttc aat gct tca gcc cca ttg gca cca gac acc aac gct tct ctg tac    2468
Phe Asn Ala Ser Ala Pro Leu Ala Pro Asp Thr Asn Ala Ser Leu Tyr
            695                 700                 705
```

75

```
aac ctc ctt aac ctc aca gcg ttg gac tgg tcc ctg ctg agc aag aag    2516
Asn Leu Leu Asn Leu Thr Ala Leu Asp Trp Ser Leu Leu Ser Lys Lys
        710             715                 720

gag tgt ctg agc tac ggc ggg cgc ctg ctt ggg aat tcc tgc aag ttt    2564
Glu Cys Leu Ser Tyr Gly Gly Arg Leu Leu Gly Asn Ser Cys Lys Phe
        725             730                 735

atc cca gac ctg gcg ctc atg tcc ttc atc ctt ttc ttt ggg aca tac    2612
Ile Pro Asp Leu Ala Leu Met Ser Phe Ile Leu Phe Phe Gly Thr Tyr
740             745                 750                 755

tcc atg acc ctg acc ctg aag aag ttc aaa ttc agc cgc tat ttt cct    2660
Ser Met Thr Leu Thr Leu Lys Lys Phe Lys Phe Ser Arg Tyr Phe Pro
            760                 765                 770

acc aag gtc cgg gcc ctg gtg gct gac ttt tcc att gtt ttc tcc atc    2708
Thr Lys Val Arg Ala Leu Val Ala Asp Phe Ser Ile Val Phe Ser Ile
            775                 780                 785

ctg atg ttc tgt gga atc gat gcc tgt ttt ggc cta gaa act ccc aag    2756
Leu Met Phe Cys Gly Ile Asp Ala Cys Phe Gly Leu Glu Thr Pro Lys
        790             795                 800

ctg cat gtg ccc agt gtc atc aag cca acg cgg cct gac cga ggc tgg    2804
Leu His Val Pro Ser Val Ile Lys Pro Thr Arg Pro Asp Arg Gly Trp
        805             810                 815

ttc gtg gcc ccc ttt ggg aag aac ccg tgg tgg gta tac cca gca agc    2852
Phe Val Ala Pro Phe Gly Lys Asn Pro Trp Trp Val Tyr Pro Ala Ser
820             825                 830                 835

atc ctg ccc gcc ctg ctg gtg acc atc ctg atc ttc atg gac cag cag    2900
Ile Leu Pro Ala Leu Leu Val Thr Ile Leu Ile Phe Met Asp Gln Gln
            840                 845                 850

atc act gcc gtc att gtc aac cgg aag gag aac aaa ctg aag aag gct    2948
Ile Thr Ala Val Ile Val Asn Arg Lys Glu Asn Lys Leu Lys Lys Ala
            855                 860                 865

gcc ggc tac cat ctg gac ctg ttc tgg gtg ggc atc ctc atg gct ttg    2996
Ala Gly Tyr His Leu Asp Leu Phe Trp Val Gly Ile Leu Met Ala Leu
        870             875                 880

tgc tcc ttt atg ggg ctc ccc tgg tac gtg gct gcc acg gtc atc tcc    3044
Cys Ser Phe Met Gly Leu Pro Trp Tyr Val Ala Ala Thr Val Ile Ser
        885             890                 895

atc gcc cac atc gac agc ctc aag atg gag aca gag acc agt gcc cct    3092
Ile Ala His Ile Asp Ser Leu Lys Met Glu Thr Glu Thr Ser Ala Pro
900             905                 910                 915

ggg gag cag ccc cag ttt ctg gga gtc agg gaa cag aga gta acc ggc    3140
Gly Glu Gln Pro Gln Phe Leu Gly Val Arg Glu Gln Arg Val Thr Gly
            920                 925                 930

atc atc gtc ttc atc ctg acg gga atc tct gtc ttc ctg gct ccc atc    3188
Ile Ile Val Phe Ile Leu Thr Gly Ile Ser Val Phe Leu Ala Pro Ile
            935                 940                 945

cta aag tgt atc ccc ctg ccg gtg ctg tac gga gtc ttc ctc tac atg    3236
```

76

```
Leu Lys Cys Ile Pro Leu Pro Val Leu Tyr Gly Val Phe Leu Tyr Met
        950             955             960

ggc gtg gcc tcc ctg aat ggc atc cag ttc tgg gaa cgc tgc aag ctc   3284
Gly Val Ala Ser Leu Asn Gly Ile Gln Phe Trp Glu Arg Cys Lys Leu
        965             970             975

ttc ctg atg cca gcc aag cac cag ccg gac cat gcc ttc ctg cgg cac   3332
Phe Leu Met Pro Ala Lys His Gln Pro Asp His Ala Phe Leu Arg His
 980             985             990                         995

gtg ccg ctg cgc cgg atc cac ctc ttc acc ctg gtg cag atc ctc tgc   3380
Val Pro Leu Arg Arg Ile His Leu Phe Thr Leu Val Gln Ile Leu Cys
            1000            1005            1010

ctg gcg gtg ctc tgg atc ctc aaa tcc acg gtg gct gcc atc atc ttc   3428
Leu Ala Val Leu Trp Ile Leu Lys Ser Thr Val Ala Ala Ile Ile Phe
            1015            1020            1025

ccg gtc atg atc ctg ggc ctc atc atc gtt cga agg ctt ctg gat ttc   3476
Pro Val Met Ile Leu Gly Leu Ile Ile Val Arg Arg Leu Leu Asp Phe
            1030            1035            1040

atc ttt tcc cag cac gac ctg gcc tgg att gac aac atc ctc cca gag   3524
Ile Phe Ser Gln His Asp Leu Ala Trp Ile Asp Asn Ile Leu Pro Glu
        1045            1050            1055

aag gaa aaa aag gag aca gac aag aag agg aag aga aaa aaa ggg gcc   3572
Lys Glu Lys Lys Glu Thr Asp Lys Lys Arg Lys Arg Lys Lys Gly Ala
1060            1065            1070            1075

cac gag gac tgt gat gag gag ccc cag ttc cct cct ccc tcg gtt ata   3620
His Glu Asp Cys Asp Glu Glu Pro Gln Phe Pro Pro Pro Ser Val Ile
            1080            1085            1090

aag att ccc atg gaa agt gtc caa tca gat ccc caa aac ggt atc cac   3668
Lys Ile Pro Met Glu Ser Val Gln Ser Asp Pro Gln Asn Gly Ile His
            1095            1100            1105

tgc att gcc aga aaa aga tct tcc agt tgg agt tac tca ctc tga       3713
Cys Ile Ala Arg Lys Arg Ser Ser Ser Trp Ser Tyr Ser Leu  *
            1110            1115            1120

ttcttccttc agtgacacag aacttgaccg aagcatcacc ttgcacttca aaatatcctg 3773
tccagcttca cctgctttca gctactcacg gaacccagtg ttcatggtgc acaggtgaa  3833
gatagagatg gagtcagact atgacttcac agacatggat aaataccgaa gagaaactga 3893
cagtgagacc accctctagg atgaagcagc ttctcccaga tgggagatgg agagcctggc 3953
ttagtcttca ctgggagggt cttaacttct ctgtgcctgt ttccttcttt atcaaacaga 4013
gggagtccgt ctgcctatag aaaactggag atctattgat gaaagtatt gcttagatgc  4073
aaagctctcc cctttgtagt aattaaaata cctaaagcta aatattatat tttatttta  4133
aatgcagttc agcatagaaa ttctaacatt tctttggaaa taaaaaaatg cttgtttccc  4193
caaaccatag ctaagataaa ggggcaatag tcaattcata tttaaaacaa atatcaattt  4253
aaaattgttt aaaggttaga tttaaatata gatgttctca aacaaacttg taatatactt  4313
ttatgtcact agaccatctt tggaatattt ggcaattctg catattaaga aatgctgaaa  4373
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ccagccgggc acagtggcac acgcctgtaa tcctagcact ttgggaggcc gaggcaggtg  4493
aattgcctga gctcaggagt tcgagaccag cctaggcaac acggtgaaac cccgtctcta  4553
ctaaactaca aaaaattagc cgggtgtggt ggcatgcacc tgtagtccca gctattcggg  4613
aggctgaggc aggagaatcg cttgaaccca ggaggcagaa gttgcagtga ctgagatgg   4673
caccactgca ctccagccta ggcaacagag tgagactccg tatccaaaca aaaaaaaagt  4733
ttgaaccatc tgcattatgg gccttgctcc agaagtgtga ctggggcttt cccagattga  4793
aaagccagtt ccaaaactct gttaatgaaa gaaccaatgc atctgagtgg ataaatgttt  4853
```

77

```
ctaaaataaa atagttcttg ttaaagtgaa atttgaaacc acatgttaaa tcaaaatgat 4913
cctttaaatt agtatcactg gttttttcata cctggaatca catttcatga tacatttggg 4973
tgggtcctcc ctgcaaattt tcaatgttta ttcccaaagt caaactccca ttcatgtgaa 5033
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```

<210> 34
<211> 1121
<212> PRT
<213> Homo Sapiens

<400> 34
```
Met Lys Val Lys Glu Glu Lys Ala Gly Val Gly Lys Leu Asp His Thr
 1               5                   10                  15
Asn His Arg Arg Arg Phe Pro Asp Gln Lys Glu Cys Pro Pro Ile His
                20                  25                  30
Ile Gly Leu Pro Val Pro Thr Tyr Pro Gln Arg Lys Thr Asp Gln Lys
            35                  40                  45
Gly His Leu Ser Gly Leu Gln Lys Val His Trp Gly Leu Arg Pro Asp
        50                  55                  60
Gln Pro Gln Gln Glu Leu Thr Gly Pro Gly Ser Gly Ala Ser Ser Gln
65                  70                  75                  80
Asp Ser Ser Met Asp Leu Ile Ser Arg Thr Arg Ser Pro Ala Ala Glu
                85                  90                  95
Gln Leu Gln Asp Ile Leu Gly Glu Glu Asp Glu Ala Pro Asn Pro Thr
            100                 105                 110
Leu Phe Thr Glu Met Asp Thr Leu Gln His Asp Gly Asp Gln Met Glu
        115                 120                 125
Trp Lys Glu Ser Ala Arg Trp Ile Lys Phe Glu Glu Lys Val Glu Glu
    130                 135                 140
Gly Gly Glu Arg Trp Ser Lys Pro His Val Ser Thr Leu Ser Leu His
145                 150                 155                 160
Ser Leu Phe Glu Leu Arg Thr Cys Leu Gln Thr Gly Thr Val Leu Leu
                165                 170                 175
Asp Leu Asp Ser Gly Ser Leu Pro Gln Ile Ile Asp Asp Val Ile Glu
            180                 185                 190
Lys Gln Ile Glu Asp Gly Leu Leu Arg Pro Glu Leu Arg Glu Arg Val
            195                 200                 205
Ser Tyr Val Leu Leu Arg Arg His Arg His Gln Thr Lys Lys Pro Ile
        210                 215                 220
His Arg Ser Leu Ala Asp Ile Gly Lys Ser Val Ser Thr Thr Asn Arg
225                 230                 235                 240
```

78

```
Ser Pro Ala Arg Ser Pro Gly Ala Gly Pro Ser Leu His His Ser Thr
                245             250                 255
Glu Asp Leu Arg Met Arg Gln Ser Ala Asn Tyr Gly Arg Leu Cys His
            260             265                 270
Ala Gln Ser Arg Ser Met Asn Asp Ile Ser Leu Thr Pro Asn Thr Asp
        275             280                 285
Gln Arg Lys Asn Lys Phe Met Lys Lys Ile Pro Lys Asp Ser Glu Ala
    290             295                 300
Ser Asn Val Leu Val Gly Glu Val Asp Phe Leu Asp Gln Pro Phe Ile
305             310                 315                 320
Ala Phe Val Arg Leu Ile Gln Ser Ala Met Leu Gly Gly Val Thr Glu
            325             330                 335
Val Pro Val Pro Thr Arg Phe Leu Phe Ile Leu Leu Gly Pro Ser Gly
            340             345                 350
Arg Ala Lys Ser Tyr Asn Glu Ile Gly Arg Ala Ile Ala Thr Leu Met
        355             360                 365
Val Asp Asp Leu Phe Ser Asp Val Ala Tyr Lys Ala Arg Asn Arg Glu
    370             375                 380
Asp Leu Ile Ala Gly Ile Asp Glu Phe Leu Asp Glu Val Ile Val Leu
385             390                 395                 400
Pro Pro Gly Glu Trp Asp Pro Asn Ile Arg Ile Glu Pro Pro Lys Lys
            405             410                 415
Val Pro Ser Ala Asp Lys Arg Lys Ser Val Phe Ser Leu Ala Glu Leu
            420             425                 430
Gly Gln Met Asn Gly Ser Val Gly Gly Gly Gly Ala Pro Gly Gly
        435             440                 445
Gly Asn Gly Gly Gly Gly Gly Gly Gly Ser Gly Gly Gly Ala Gly Ser
    450             455                 460
Gly Gly Ala Gly Gly Thr Ser Ser Gly Asp Asp Gly Glu Met Pro Ala
465             470                 475                 480
Met His Glu Ile Gly Glu Glu Leu Ile Trp Thr Gly Arg Phe Phe Gly
            485             490                 495
Gly Leu Cys Leu Asp Ile Lys Arg Lys Leu Pro Trp Phe Pro Ser Asp
            500             505                 510
Phe Tyr Asp Gly Phe His Ile Gln Ser Ile Ser Ala Ile Leu Phe Ile
        515             520                 525
Tyr Leu Gly Cys Ile Thr Asn Ala Ile Thr Phe Gly Gly Leu Leu Gly
    530             535                 540
Asp Ala Thr Asp Asn Tyr Gln Gly Val Met Glu Ser Phe Leu Gly Thr
545             550                 555                 560
Ala Met Ala Gly Ser Leu Phe Cys Leu Phe Ser Gly Gln Pro Leu Ile
            565             570                 575
Ile Leu Ser Ser Thr Gly Pro Ile Leu Ile Phe Glu Lys Leu Leu Phe
            580             585                 590
Asp Phe Ser Lys Gly Asn Gly Leu Asp Tyr Met Glu Phe Arg Leu Trp
    595             600                 605
Ile Gly Leu His Ser Ala Val Gln Cys Leu Ile Leu Val Ala Thr Asp
    610             615                 620
Ala Ser Phe Ile Ile Lys Tyr Ile Thr Arg Phe Thr Glu Glu Gly Phe
625             630                 635                 640
Ser Thr Leu Ile Ser Phe Ile Phe Ile Tyr Asp Ala Ile Lys Lys Met
            645             650                 655
Ile Gly Ala Phe Lys Tyr Tyr Pro Ile Asn Met Asp Phe Lys Pro Asn
            660             665                 670
Phe Ile Thr Thr Tyr Lys Cys Glu Cys Val Ala Pro Asp Thr Val Asn
        675             680                 685
Thr Thr Val Phe Asn Ala Ser Ala Pro Leu Ala Pro Asp Thr Asn Ala
    690             695                 700
Ser Leu Tyr Asn Leu Leu Asn Leu Thr Ala Leu Asp Trp Ser Leu Leu
705             710                 715                 720
Ser Lys Lys Glu Cys Leu Ser Tyr Gly Gly Arg Leu Leu Gly Asn Ser
            725             730                 735
```

79

```
Cys Lys Phe Ile Pro Asp Leu Ala Leu Met Ser Phe Ile Leu Phe Phe
        740                     745                 750
Gly Thr Tyr Ser Met Thr Leu Thr Leu Lys Lys Phe Lys Phe Ser Arg
        755                     760                 765
Tyr Phe Pro Thr Lys Val Arg Ala Leu Val Ala Asp Phe Ser Ile Val
    770                 775                 780
Phe Ser Ile Leu Met Phe Cys Gly Ile Asp Ala Cys Phe Gly Leu Glu
785                     790                 795                 800
Thr Pro Lys Leu His Val Pro Ser Val Ile Lys Pro Thr Arg Pro Asp
                805                     810                 815
Arg Gly Trp Phe Val Ala Pro Phe Gly Lys Asn Pro Trp Trp Val Tyr
                820                     825                 830
Pro Ala Ser Ile Leu Pro Ala Leu Leu Val Thr Ile Leu Ile Phe Met
            835                     840                 845
Asp Gln Gln Ile Thr Ala Val Ile Val Asn Arg Lys Glu Asn Lys Leu
        850                     855                 860
Lys Lys Ala Ala Gly Tyr His Leu Asp Leu Phe Trp Val Gly Ile Leu
865                     870                 875                 880
Met Ala Leu Cys Ser Phe Met Gly Leu Pro Trp Tyr Val Ala Ala Thr
                885                     890                 895
Val Ile Ser Ile Ala His Ile Asp Ser Leu Lys Met Glu Thr Glu Thr
                900                     905                 910
Ser Ala Pro Gly Glu Gln Pro Gln Phe Leu Gly Val Arg Glu Gln Arg
            915                     920                 925
Val Thr Gly Ile Ile Val Phe Ile Leu Thr Gly Ile Ser Val Phe Leu
    930                     935                 940
Ala Pro Ile Leu Lys Cys Ile Pro Leu Pro Val Leu Tyr Gly Val Phe
945                     950                     955                 960
Leu Tyr Met Gly Val Ala Ser Leu Asn Gly Ile Gln Phe Trp Glu Arg
            965                     970                 975
Cys Lys Leu Phe Leu Met Pro Ala Lys His Gln Pro Asp His Ala Phe
            980                     985                 990
Leu Arg His Val Pro Leu Arg Arg Ile His Leu Phe Thr Leu Val Gln
        995                     1000                1005
Ile Leu Cys Leu Ala Val Leu Trp Ile Leu Lys Ser Thr Val Ala Ala
    1010                    1015                1020
Ile Ile Phe Pro Val Met Ile Leu Gly Leu Ile Ile Val Arg Arg Leu
1025                    1030                1035                1040
Leu Asp Phe Ile Phe Ser Gln His Asp Leu Ala Trp Ile Asp Asn Ile
            1045                    1050                1055
Leu Pro Glu Lys Glu Lys Lys Glu Thr Asp Lys Lys Arg Lys Arg Lys
            1060                    1065                1070
Lys Gly Ala His Glu Asp Cys Asp Glu Glu Pro Gln Phe Pro Pro Pro
            1075                    1080                1085
Ser Val Ile Lys Ile Pro Met Glu Ser Val Gln Ser Asp Pro Gln Asn
    1090                    1095                1100
Gly Ile His Cys Ile Ala Arg Lys Arg Ser Ser Ser Trp Ser Tyr Ser
1105                    1110                1115                1120
Leu
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<400> 35

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gcggcagga atg ctg cgc gcc gcc ctg tcc ctg ctc gcg ctg ccc ctg gcg 111
         Met Leu Arg Ala Ala Leu Ser Leu Leu Ala Leu Pro Leu Ala
          1               5                  10

ggg gcg gcc gaa gag ccc acc cag aag cca gag tcc ccg ggc gag cct   159
Gly Ala Ala Glu Glu Pro Thr Gln Lys Pro Glu Ser Pro Gly Glu Pro
 15              20                  25                  30

ccc cca ggc tta gag ctc ttc cgc tgg cag tgg cac gag gtg gag gcg   207
Pro Pro Gly Leu Glu Leu Phe Arg Trp Gln Trp His Glu Val Glu Ala
                 35                  40                  45

ccc tac ctg gtg gcc ctg tgg atc ctg gtg gcc agt ctg gcc aaa atc   255
Pro Tyr Leu Val Ala Leu Trp Ile Leu Val Ala Ser Leu Ala Lys Ile
             50                  55                  60

gtg ttt cac ctg tct cgg aaa gta aca tct ctg gtc cct gag agc tgc   303
Val Phe His Leu Ser Arg Lys Val Thr Ser Leu Val Pro Glu Ser Cys
         65                  70                  75

ctg ctg att ttg ctg ggc ctg gtg cta ggg gga att gtt ttg gct gtg   351
Leu Leu Ile Leu Leu Gly Leu Val Leu Gly Gly Ile Val Leu Ala Val
     80                  85                  90

gcc aag aaa gct gag tac cag ctg gag cca ggc acc ttc ttc ctc ttc   399
Ala Lys Lys Ala Glu Tyr Gln Leu Glu Pro Gly Thr Phe Phe Leu Phe
 95                  100                 105                 110

ctg ctg cct cct att gtg ttg gac tca ggc tat ttc atg cct agc agg   447
Leu Leu Pro Pro Ile Val Leu Asp Ser Gly Tyr Phe Met Pro Ser Arg
             115                 120                 125

ctg ttc ttt gac aac ttg ggt gcc atc ctc acc tat gcc gtg gta ggc   495
Leu Phe Phe Asp Asn Leu Gly Ala Ile Leu Thr Tyr Ala Val Val Gly
             130                 135                 140

aca ctc tgg aat gcc ttc aca aca ggc gct gcc ctc tgg ggc ttg cag   543
Thr Leu Trp Asn Ala Phe Thr Thr Gly Ala Ala Leu Trp Gly Leu Gln
         145                 150                 155

cag gct gga ctt gta gcc cct agg gtg cag gct ggc tta ctg gac ttc   591
Gln Ala Gly Leu Val Ala Pro Arg Val Gln Ala Gly Leu Leu Asp Phe
 160                 165                 170

ctg ctg ttt ggg agc ctc atc tcg gcg gtg gac ccc gtg gcc gtg cta   639
Leu Leu Phe Gly Ser Leu Ile Ser Ala Val Asp Pro Val Ala Val Leu
175                 180                 185                 190

gct gtc ttt gag gag gtg cac gtc aat gag act ctc ttt atc atc gtc   687
Ala Val Phe Glu Glu Val His Val Asn Glu Thr Leu Phe Ile Ile Val
             195                 200                 205

ttt ggc gag tcc ctg ctc aac gat gct gtc acc gtg gtg ctg tac aag   735
Phe Gly Glu Ser Leu Leu Asn Asp Ala Val Thr Val Val Leu Tyr Lys
             210                 215                 220

gtc tgc aac tcc ttt gtg gag atg ggc tct gcc aat gtg cag gcc act   783
Val Cys Asn Ser Phe Val Glu Met Gly Ser Ala Asn Val Gln Ala Thr
         225                 230                 235

gac tac ctg aag gga gtc gcc tcc ctg ttt gtg gtc agt ctg ggc ggg   831
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81

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Asp Tyr Leu Lys Gly Val Ala Ser Leu Phe Val Val Ser Leu Gly Gly
    240             245             250

gca gcc gtg ggc tta gtc ttt gcc ttc ctc ctg gcc ctg acc aca cgc   879
Ala Ala Val Gly Leu Val Phe Ala Phe Leu Leu Ala Leu Thr Thr Arg
255             260             265             270

ttc acc aag cgg gtc cgc atc atc gag ccg ctg ctg gtc ttc ctc ctc   927
Phe Thr Lys Arg Val Arg Ile Ile Glu Pro Leu Leu Val Phe Leu Leu
            275             280             285

gcc tac gca gcc tac ctc act gct gaa atg gcc tcg ctc tcc gcc att   975
Ala Tyr Ala Ala Tyr Leu Thr Ala Glu Met Ala Ser Leu Ser Ala Ile
        290             295             300

ctt gcg gtg acc atg tgt ggc ctg ggc tgt aag aag tac gtg gag gcc  1023
Leu Ala Val Thr Met Cys Gly Leu Gly Cys Lys Lys Tyr Val Glu Ala
        305             310             315

aac atc tcc cat aag tca cgc aca act gtc aaa tat aca atg aag act  1071
Asn Ile Ser His Lys Ser Arg Thr Thr Val Lys Tyr Thr Met Lys Thr
    320             325             330

cta gcc agc tgt gct gag acc gtg atc ttc atg ctg ctt ggc atc tca  1119
Leu Ala Ser Cys Ala Glu Thr Val Ile Phe Met Leu Leu Gly Ile Ser
335             340             345             350

gcc gtg gac tct tct aag tgg gcc tgg gat tct ggg ctg gtg ctg ggc  1167
Ala Val Asp Ser Ser Lys Trp Ala Trp Asp Ser Gly Leu Val Leu Gly
            355             360             365

acc ctc atc ttc atc ctg ttc ttc cga gcc ctc ggc gta gtc ctg cag  1215
Thr Leu Ile Phe Ile Leu Phe Phe Arg Ala Leu Gly Val Val Leu Gln
            370             375             380

acc tgg gtg ctg aat cag ttc cgg cta gtc cct ctg gac aag att gac  1263
Thr Trp Val Leu Asn Gln Phe Arg Leu Val Pro Leu Asp Lys Ile Asp
            385             390             395

caa gtg gtg atg tcc tat ggg ggc ctg cgg ggg gct gtg gcc ttt gct  1311
Gln Val Val Met Ser Tyr Gly Gly Leu Arg Gly Ala Val Ala Phe Ala
    400             405             410

ctc gtc atc cta ctg gat agg acc aag gtc cct gcc aag gac tac ttt  1359
Leu Val Ile Leu Leu Asp Arg Thr Lys Val Pro Ala Lys Asp Tyr Phe
415             420             425             430

gta gcc acc act att gta gtg gtc ttc ttc aca gtc atc gtg cag ggc  1407
Val Ala Thr Thr Ile Val Val Val Phe Phe Thr Val Ile Val Gln Gly
            435             440             445

ttg acc atc aag cca ctg gtc aaa tgg ctg aag gtg aag agg agt gag  1455
Leu Thr Ile Lys Pro Leu Val Lys Trp Leu Lys Val Lys Arg Ser Glu
            450             455             460

cat cac aaa ccc acc ctg aac cag gag ctg cat gaa cac act ttt gac  1503
His His Lys Pro Thr Leu Asn Gln Glu Leu His Glu His Thr Phe Asp
            465             470             475

cac att ctg gct gca gtg gag gac gtt gtg ggg cac cat ggc tac cac  1551
His Ile Leu Ala Ala Val Glu Asp Val Val Gly His His Gly Tyr His
    480             485             490
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tac tgg agg gac agg tgg gag cag ttt gac aag aaa tac ctg agt cag    1599
Tyr Trp Arg Asp Arg Trp Glu Gln Phe Asp Lys Lys Tyr Leu Ser Gln
495             500             505             510

ctg ctg atg cga cga tca gcc tac cgc atc cgg gac cag atc tgg gat    1647
Leu Leu Met Arg Arg Ser Ala Tyr Arg Ile Arg Asp Gln Ile Trp Asp
            515             520             525

gtg tac tac agg ctt aac atc cgg gat gcc atc agc ttt gtg gac cag    1695
Val Tyr Tyr Arg Leu Asn Ile Arg Asp Ala Ile Ser Phe Val Asp Gln
            530             535             540

gga ggc cac gtc ttg tct tcc aca ggt ctc act ctg cct tct atg ccc    1743
Gly Gly His Val Leu Ser Ser Thr Gly Leu Thr Leu Pro Ser Met Pro
            545             550             555

agc cgc aat tct gtg gca gaa act tct gtc acc aac ctg ctg agg gag    1791
Ser Arg Asn Ser Val Ala Glu Thr Ser Val Thr Asn Leu Leu Arg Glu
    560             565             570

agt ggc agt gga gcg tgt ctg gat ctg cag gtg att gac aca gta cgc    1839
Ser Gly Ser Gly Ala Cys Leu Asp Leu Gln Val Ile Asp Thr Val Arg
575             580             585             590

agc ggc cgg gat cgt gag gat gct gtg atg cat cat ctg ctc tgc gga    1887
Ser Gly Arg Asp Arg Glu Asp Ala Val Met His His Leu Leu Cys Gly
            595             600             605

ggc ctc tac aag ccg cgc cgt agg tac aaa gcc agc tgc agt cgc cac    1935
Gly Leu Tyr Lys Pro Arg Arg Arg Tyr Lys Ala Ser Cys Ser Arg His
            610             615             620

ttc atc tca gag gat gcg cag gag cgg cag gac aag gag gtc ttc cag    1983
Phe Ile Ser Glu Asp Ala Gln Glu Arg Gln Asp Lys Glu Val Phe Gln
            625             630             635

cag aac atg aag cgg cgg ctg gag tcc ttt aag tcc acc aag cac aac    2031
Gln Asn Met Lys Arg Arg Leu Glu Ser Phe Lys Ser Thr Lys His Asn
    640             645             650

atc tgc ttc acc aag agc aag cca cga ccc cgc aag act ggc cgc agg    2079
Ile Cys Phe Thr Lys Ser Lys Pro Arg Pro Arg Lys Thr Gly Arg Arg
655             660             665             670

aag aag gat ggt gtg gcg aat gct gag gct aca aat ggg aaa cat cga    2127
Lys Lys Asp Gly Val Ala Asn Ala Glu Ala Thr Asn Gly Lys His Arg
            675             680             685

ggc ctg ggc ttt cag gac aca gct gct gtg ata tta acc gtg gag tct    2175
Gly Leu Gly Phe Gln Asp Thr Ala Ala Val Ile Leu Thr Val Glu Ser
            690             695             700

gag gag gag gag gag gag agc gac agt tca gag aca gag aag gag gac    2223
Glu Glu Glu Glu Glu Glu Ser Asp Ser Ser Glu Thr Glu Lys Glu Asp
            705             710             715

gat gag ggg atc atc ttt gtg gct cgt gcc acc agt gag gtt ctc caa    2271
Asp Glu Gly Ile Ile Phe Val Ala Arg Ala Thr Ser Glu Val Leu Gln
    720             725             730

gag ggc aag gtc tca gga agc ctt gag gtg tgc cca agc cca cga atc    2319
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83

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Glu Gly Lys Val Ser Gly Ser Leu Glu Val Cys Pro Ser Pro Arg Ile
735             740             745             750

att ccc ccc tcc cca acc tgt gca gaa aag gag ctc ccc tgg aag agt    2367
Ile Pro Pro Ser Pro Thr Cys Ala Glu Lys Glu Leu Pro Trp Lys Ser
            755             760             765

ggg cag ggg gac ctg gca gtg tac gtg tcc tcg gaa acc acc aag att    2415
Gly Gln Gly Asp Leu Ala Val Tyr Val Ser Ser Glu Thr Thr Lys Ile
            770             775             780

gtg cct gtg gac atg cag acg ggt tgg aac cag agc atc tca tcc ctg    2463
Val Pro Val Asp Met Gln Thr Gly Trp Asn Gln Ser Ile Ser Ser Leu
            785             790             795

gag agc cta gcg tcc cct ccc tgt aac cag gcc cca att ctg acc tgc    2511
Glu Ser Leu Ala Ser Pro Pro Cys Asn Gln Ala Pro Ile Leu Thr Cys
        800             805             810

ctg cct ccc cat cca cgg ggc act gaa gag ccc cag gtc cct ctc cac    2559
Leu Pro Pro His Pro Arg Gly Thr Glu Glu Pro Gln Val Pro Leu His
815             820             825             830

cta cct tct gat cca cgc tct agc ttc gcc ttc cca ccg agc ctg gcc    2607
Leu Pro Ser Asp Pro Arg Ser Ser Phe Ala Phe Pro Pro Ser Leu Ala
            835             840             845

aag gct ggc cgc tct cgc agt gag agc agc gct gac ctc ccc cag cag    2655
Lys Ala Gly Arg Ser Arg Ser Glu Ser Ser Ala Asp Leu Pro Gln Gln
            850             855             860

cag gag ctg cag ccc ctc atg ggc cac aag gac cac acc cat ctc agc    2703
Gln Glu Leu Gln Pro Leu Met Gly His Lys Asp His Thr His Leu Ser
        865             870             875

cca ggc acc gct acc tcc cac tgg tgc atc cag ttc aac aga ggc agc    2751
Pro Gly Thr Ala Thr Ser His Trp Cys Ile Gln Phe Asn Arg Gly Ser
        880             885             890

cgg ctg tag ctcaaggcct cggggaggag caggaggtgg aatccctgtg            2800
Arg Leu *
895

ggaagtgctc cctgggtgat gggtagagcc ctcgaaactt gacatggggc cagaagggcc 2860
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<212> PRT
<213> Homo Sapiens

<400> 36
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Met Leu Arg Ala Ala Leu Ser Leu Leu Ala Leu Pro Leu Ala Gly Ala
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Ala Glu Glu Pro Thr Gln Lys Pro Glu Ser Pro Gly Glu Pro Pro Pro
            20                  25                  30
Gly Leu Glu Leu Phe Arg Trp Gln Trp His Glu Val Glu Ala Pro Tyr
        35                  40                  45
Leu Val Ala Leu Trp Ile Leu Val Ala Ser Leu Ala Lys Ile Val Phe
    50                  55                  60
His Leu Ser Arg Lys Val Thr Ser Leu Val Pro Glu Ser Cys Leu Leu
65                  70                  75                  80
Ile Leu Leu Gly Leu Val Leu Gly Gly Ile Val Leu Ala Val Ala Lys
            85                  90                  95
Lys Ala Glu Tyr Gln Leu Glu Pro Gly Thr Phe Phe Leu Phe Leu Leu
            100                 105                 110
Pro Pro Ile Val Leu Asp Ser Gly Tyr Phe Met Pro Ser Arg Leu Phe
            115                 120                 125
Phe Asp Asn Leu Gly Ala Ile Leu Thr Tyr Ala Val Val Gly Thr Leu
    130                 135                 140
Trp Asn Ala Phe Thr Thr Gly Ala Ala Leu Trp Gly Leu Gln Gln Ala
145                 150                 155                 160
Gly Leu Val Ala Pro Arg Val Gln Ala Gly Leu Leu Asp Phe Leu Leu
            165                 170                 175
Phe Gly Ser Leu Ile Ser Ala Val Asp Pro Val Ala Val Leu Ala Val
            180                 185                 190
Phe Glu Glu Val His Val Asn Glu Thr Leu Phe Ile Ile Val Phe Gly
            195                 200                 205
Glu Ser Leu Leu Asn Asp Ala Val Thr Val Val Leu Tyr Lys Val Cys
    210                 215                 220
Asn Ser Phe Val Glu Met Gly Ser Ala Asn Val Gln Ala Thr Asp Tyr
225                 230                 235                 240
Leu Lys Gly Val Ala Ser Leu Phe Val Val Ser Leu Gly Gly Ala Ala
            245                 250                 255
Val Gly Leu Val Phe Ala Phe Leu Leu Ala Leu Thr Thr Arg Phe Thr
            260                 265                 270
Lys Arg Val Arg Ile Ile Glu Pro Leu Leu Val Phe Leu Leu Ala Tyr
    275                 280                 285
Ala Ala Tyr Leu Thr Ala Glu Met Ala Ser Leu Ser Ala Ile Leu Ala
    290                 295                 300
Val Thr Met Cys Gly Leu Gly Cys Lys Lys Tyr Val Glu Ala Asn Ile
305                 310                 315                 320
Ser His Lys Ser Arg Thr Thr Val Lys Tyr Thr Met Lys Thr Leu Ala
            325                 330                 335
Ser Cys Ala Glu Thr Val Ile Phe Met Leu Leu Gly Ile Ser Ala Val
            340                 345                 350
Asp Ser Ser Lys Trp Ala Trp Asp Ser Gly Leu Val Leu Gly Thr Leu
            355                 360                 365
Ile Phe Ile Leu Phe Phe Arg Ala Leu Gly Val Val Leu Gln Thr Trp
    370                 375                 380
Val Leu Asn Gln Phe Arg Leu Val Pro Leu Asp Lys Ile Asp Gln Val
385                 390                 395                 400
Val Met Ser Tyr Gly Gly Leu Arg Gly Ala Val Ala Phe Ala Leu Val
            405                 410                 415
Ile Leu Leu Asp Arg Thr Lys Val Pro Ala Lys Asp Tyr Phe Val Ala
            420                 425                 430
Thr Thr Ile Val Val Val Phe Phe Thr Val Ile Val Gln Gly Leu Thr
            435                 440                 445
Ile Lys Pro Leu Val Lys Trp Leu Lys Val Lys Arg Ser Glu His His
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85

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        450                     455                     460
Lys Pro Thr Leu Asn Gln Glu Leu His Glu His Thr Phe Asp His Ile
465                     470                     475                     480
Leu Ala Ala Val Glu Asp Val Val Gly His His Gly Tyr His Tyr Trp
                    485                     490                     495
Arg Asp Arg Trp Glu Gln Phe Asp Lys Lys Tyr Leu Ser Gln Leu Leu
                500                     505                     510
Met Arg Arg Ser Ala Tyr Arg Ile Arg Asp Gln Ile Trp Asp Val Tyr
                515                     520                     525
Tyr Arg Leu Asn Ile Arg Asp Ala Ile Ser Phe Val Asp Gln Gly Gly
            530                     535                     540
His Val Leu Ser Ser Thr Gly Leu Thr Leu Pro Ser Met Pro Ser Arg
545                     550                     555                     560
Asn Ser Val Ala Glu Thr Ser Val Thr Asn Leu Leu Arg Glu Ser Gly
                565                     570                     575
Ser Gly Ala Cys Leu Asp Leu Gln Val Ile Asp Thr Val Arg Ser Gly
                580                     585                     590
Arg Asp Arg Glu Asp Ala Val Met His His Leu Leu Cys Gly Gly Leu
                595                     600                     605
Tyr Lys Pro Arg Arg Arg Tyr Lys Ala Ser Cys Ser Arg His Phe Ile
            610                     615                     620
Ser Glu Asp Ala Gln Glu Arg Gln Asp Lys Glu Val Phe Gln Gln Asn
625                     630                     635                     640
Met Lys Arg Arg Leu Glu Ser Phe Lys Ser Thr Lys His Asn Ile Cys
                645                     650                     655
Phe Thr Lys Ser Lys Pro Arg Pro Arg Lys Thr Gly Arg Arg Lys Lys
                660                     665                     670
Asp Gly Val Ala Asn Ala Glu Ala Thr Asn Gly Lys His Arg Gly Leu
            675                     680                     685
Gly Phe Gln Asp Thr Ala Ala Val Ile Leu Thr Val Glu Ser Glu Glu
            690                     695                     700
Glu Glu Glu Glu Ser Asp Ser Ser Glu Thr Glu Lys Glu Asp Asp Glu
705                     710                     715                     720
Gly Ile Ile Phe Val Ala Arg Ala Thr Ser Glu Val Leu Gln Glu Gly
                725                     730                     735
Lys Val Ser Gly Ser Leu Glu Val Cys Pro Ser Pro Arg Ile Ile Pro
                740                     745                     750
Pro Ser Pro Thr Cys Ala Glu Lys Glu Leu Pro Trp Lys Ser Gly Gln
                755                     760                     765
Gly Asp Leu Ala Val Tyr Val Ser Ser Glu Thr Thr Lys Ile Val Pro
            770                     775                     780
Val Asp Met Gln Thr Gly Trp Asn Gln Ser Ile Ser Ser Leu Glu Ser
785                     790                     795                     800
Leu Ala Ser Pro Pro Cys Asn Gln Ala Pro Ile Leu Thr Cys Leu Pro
                805                     810                     815
Pro His Pro Arg Gly Thr Glu Glu Pro Gln Val Pro Leu His Leu Pro
                820                     825                     830
Ser Asp Pro Arg Ser Ser Phe Ala Phe Pro Pro Ser Leu Ala Lys Ala
                835                     840                     845
Gly Arg Ser Arg Ser Glu Ser Ser Ala Asp Leu Pro Gln Gln Gln Glu
            850                     855                     860
Leu Gln Pro Leu Met Gly His Lys Asp His Thr His Leu Ser Pro Gly
865                     870                     875                     880
Thr Ala Thr Ser His Trp Cys Ile Gln Phe Asn Arg Gly Ser Arg Leu
                885                     890                     895
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<213> Homo Sapiens

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ggc aag ccc aac tct tcg tct aac agc cgg gac gat ggc aac agc gtc   102
Gly Lys Pro Asn Ser Ser Ser Asn Ser Arg Asp Asp Gly Asn Ser Val
 5   10   15   20

ttc ccc gcc aag gcg tcc gcg ccg ggc gcg ggg ccg gcc gcg gcc gag   150
Phe Pro Ala Lys Ala Ser Ala Pro Gly Ala Gly Pro Ala Ala Ala Glu
                25   30   35

aag cgc ctg ggc acc ccg ccg ggg ggc ggc ggg gcc ggc gcg aag gag   198
Lys Arg Leu Gly Thr Pro Pro Gly Gly Gly Gly Ala Gly Ala Lys Glu
            40   45   50

cac ggc aac tcc gtg tgc ttc aag gtg gac ggc ggt ggc ggc gag gag   246
His Gly Asn Ser Val Cys Phe Lys Val Asp Gly Gly Gly Gly Glu Glu
            55   60   65

ccg gcg ggg ggc ttc gaa gac gcc gag ggg ccc cgg cgg cag tac ggc   294
Pro Ala Gly Gly Phe Glu Asp Ala Glu Gly Pro Arg Arg Gln Tyr Gly
        70   75   80

ttc atg cag agg cag ttc acc tcc atg ctg cag ccc ggg gtc aac aaa   342
Phe Met Gln Arg Gln Phe Thr Ser Met Leu Gln Pro Gly Val Asn Lys
 85   90   95   100

ttc tcc ctc cgc atg ttt ggg agc cag aag gcg gtg gaa aag gag cag   390
Phe Ser Leu Arg Met Phe Gly Ser Gln Lys Ala Val Glu Lys Glu Gln
                105   110   115

gaa agg gtt aaa act gca ggc ttc tgg att atc cac cct tac agt gat   438
Glu Arg Val Lys Thr Ala Gly Phe Trp Ile Ile His Pro Tyr Ser Asp
                120   125   130

ttc agg ttt tac tgg gat tta ata atg ctt ata atg atg gtt gga aat   486
Phe Arg Phe Tyr Trp Asp Leu Ile Met Leu Ile Met Met Val Gly Asn
            135   140   145

cta gtc atc ata cca gtt gga atc aca ttc ttt aca gag caa aca aca   534
Leu Val Ile Ile Pro Val Gly Ile Thr Phe Phe Thr Glu Gln Thr Thr
            150   155   160

aca cca tgg att att ttc aat gtg gcg tca gat aca gtt ttc cta ttg   582
Thr Pro Trp Ile Ile Phe Asn Val Ala Ser Asp Thr Val Phe Leu Leu
165   170   175   180

gac ctg atc atg aat ttt agg act ggg act gtc aat gaa gac agt tct   630
Asp Leu Ile Met Asn Phe Arg Thr Gly Thr Val Asn Glu Asp Ser Ser
                185   190   195

gaa atc atc ctg gac ccc aaa gtg atc aag atg aat tat tta aaa agc   678
Glu Ile Ile Leu Asp Pro Lys Val Ile Lys Met Asn Tyr Leu Lys Ser
                200   205   210

tgg ttt gtg gtt gac ttc atc tca tcc atc cca gtg gat tat atc ttt   726

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Trp Phe Val Val Asp Phe Ile Ser Ser Ile Pro Val Asp Tyr Ile Phe
        215             220             225

ctt att gta gaa aaa gga atg gat tct gaa gtt tac aag aca gcc agg   774
Leu Ile Val Glu Lys Gly Met Asp Ser Glu Val Tyr Lys Thr Ala Arg
        230             235             240

gcm ctt cgc att gtg agg ttt aca aaa att ctc agt ctc ttg cgt tta   822
Xaa Leu Arg Ile Val Arg Phe Thr Lys Ile Leu Ser Leu Leu Arg Leu
245             250             255             260

tta cga ctt tca agg tta att aga tac ata cat caa tgg gaa gag ata   870
Leu Arg Leu Ser Arg Leu Ile Arg Tyr Ile His Gln Trp Glu Glu Ile
            265             270             275

ttc cac atg aca tat gat ctc gcc agt gca gtg gtg aga att ttt aat   918
Phe His Met Thr Tyr Asp Leu Ala Ser Ala Val Val Arg Ile Phe Asn
            280             285             290

ctc atc ggc atg atg ctg ctc ctg tgc cac tgg gat ggt tgt ctt cag   966
Leu Ile Gly Met Met Leu Leu Leu Cys His Trp Asp Gly Cys Leu Gln
            295             300             305

ttc tta gta cca cta ctg cag gac ttc cca cca gat tgc tgg gtg tct  1014
Phe Leu Val Pro Leu Leu Gln Asp Phe Pro Pro Asp Cys Trp Val Ser
        310             315             320

tta aat gaa atg gtt aat gat tct tgg gga aag cag tat tca tac gca  1062
Leu Asn Glu Met Val Asn Asp Ser Trp Gly Lys Gln Tyr Ser Tyr Ala
325             330             335             340

ctc ttc aaa gct atg agt cac atg ctg tgc att ggg tat gga gcc caa  1110
Leu Phe Lys Ala Met Ser His Met Leu Cys Ile Gly Tyr Gly Ala Gln
            345             350             355

gcc cca gtc agc atg tct gac ctc tgg att acc atg ctg agc atg atc  1158
Ala Pro Val Ser Met Ser Asp Leu Trp Ile Thr Met Leu Ser Met Ile
            360             365             370

gtc ggg gcc acc tgc tat gcc atg ttt gtc ggc cat gcc acc gct tta  1206
Val Gly Ala Thr Cys Tyr Ala Met Phe Val Gly His Ala Thr Ala Leu
            375             380             385

atc cag tct ctg gat tct tcg agg cgg cag tat caa gag aag tat aag  1254
Ile Gln Ser Leu Asp Ser Ser Arg Arg Gln Tyr Gln Glu Lys Tyr Lys
        390             395             400

caa gtg gaa caa tac atg tca ttc cat aag tta cca gct gat atg cgt  1302
Gln Val Glu Gln Tyr Met Ser Phe His Lys Leu Pro Ala Asp Met Arg
405             410             415             420

cag aag ata cat gat tac tat gaa cac aga tac caa ggc aaa atc ttt  1350
Gln Lys Ile His Asp Tyr Tyr Glu His Arg Tyr Gln Gly Lys Ile Phe
            425             430             435

gat gag gaa aat att ctc aat gaa ctc aat gat cct ctg aga gag gag  1398
Asp Glu Glu Asn Ile Leu Asn Glu Leu Asn Asp Pro Leu Arg Glu Glu
            440             445             450

ata gtc aac ttc aac tgt cgg aaa ctg gtg gct aca atg cct tta ttt  1446
Ile Val Asn Phe Asn Cys Arg Lys Leu Val Ala Thr Met Pro Leu Phe
            455             460             465
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gct aat gcg gat cct aat ttt gtg act gcc atg ctg agc aag ttg aga    1494
Ala Asn Ala Asp Pro Asn Phe Val Thr Ala Met Leu Ser Lys Leu Arg
    470             475             480

ttt gag gtg ttt caa cct gga gat tat atc ata cga gaa gga gcc gtg    1542
Phe Glu Val Phe Gln Pro Gly Asp Tyr Ile Ile Arg Glu Gly Ala Val
485             490             495             500

ggt aaa aaa atg tat ttc att caa cac ggt gtt gct ggt gtc att aca    1590
Gly Lys Lys Met Tyr Phe Ile Gln His Gly Val Ala Gly Val Ile Thr
            505             510             515

aaa tcc agt aaa gaa atg aag ctg aca gat ggc tct tac ttt gga gag    1638
Lys Ser Ser Lys Glu Met Lys Leu Thr Asp Gly Ser Tyr Phe Gly Glu
            520             525             530

att tgc ctg ctg acc aaa gga cgt cgt act gcc agt gtt cga gct gat    1686
Ile Cys Leu Leu Thr Lys Gly Arg Arg Thr Ala Ser Val Arg Ala Asp
        535             540             545

aca tat tgt cgt ctt tac tca ctt tcc gtg gac aat ttc aac gag gtc    1734
Thr Tyr Cys Arg Leu Tyr Ser Leu Ser Val Asp Asn Phe Asn Glu Val
    550             555             560

ctg gag gaa tat cca atg atg agg aga gcc ttt gag aca gtt gcc att    1782
Leu Glu Glu Tyr Pro Met Met Arg Arg Ala Phe Glu Thr Val Ala Ile
565             570             575             580

gac cga cta gat cga ata gga aag aaa aat tca att ctt ctg caa aag    1830
Asp Arg Leu Asp Arg Ile Gly Lys Lys Asn Ser Ile Leu Leu Gln Lys
            585             590             595

ttc cag aag gat ctg aac act ggt gtt ttc aac aat cag gag aac gaa    1878
Phe Gln Lys Asp Leu Asn Thr Gly Val Phe Asn Asn Gln Glu Asn Glu
            600             605             610

atc ctc aag cag att gtg aaa cat gac agg gag atg gtg cag gca atc    1926
Ile Leu Lys Gln Ile Val Lys His Asp Arg Glu Met Val Gln Ala Ile
            615             620             625

gct ccc atc aat tat cct caa atg aca acc ctg aat tcc aca tcg tct    1974
Ala Pro Ile Asn Tyr Pro Gln Met Thr Thr Leu Asn Ser Thr Ser Ser
    630             635             640

act acg acc ccg acc tcc cgc atg agg aca caa tct cca ccg gtg tac    2022
Thr Thr Thr Pro Thr Ser Arg Met Arg Thr Gln Ser Pro Pro Val Tyr
645             650             655             660

aca gcg acc agc ctg tct cac agc aac ctg cac tcc ccc agt ccc agc    2070
Thr Ala Thr Ser Leu Ser His Ser Asn Leu His Ser Pro Ser Pro Ser
            665             670             675

aca cag acc ccc cag cca tca gcc atc ctg tca ccc tgc tcc tac acc    2118
Thr Gln Thr Pro Gln Pro Ser Ala Ile Leu Ser Pro Cys Ser Tyr Thr
            680             685             690

acc gcg gtc tgc agc cct cct gta cag agc cct ctg gcc gct cga act    2166
Thr Ala Val Cys Ser Pro Pro Val Gln Ser Pro Leu Ala Ala Arg Thr
    695             700             705

ttc cac tat gcc tcc ccc acc gcc tcc cag ctg tca ctc atg caa cag    2214
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89

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Phe His Tyr Ala Ser Pro Thr Ala Ser Gln Leu Ser Leu Met Gln Gln
    710             715             720

cag ccg cag cag cag gta cag cag tcc cag ccg ccg cag act cag cca    2262
Gln Pro Gln Gln Gln Val Gln Gln Ser Gln Pro Pro Gln Thr Gln Pro
725             730             735             740

cag cag ccg tcc ccg cag cca cag aca cct ggc agc tcc acg ccg aaa    2310
Gln Gln Pro Ser Pro Gln Pro Gln Thr Pro Gly Ser Ser Thr Pro Lys
            745             750             755

aat gaa gtg cac aag agc acg cag gcg ctt cac aac acc aac ctg acc    2358
Asn Glu Val His Lys Ser Thr Gln Ala Leu His Asn Thr Asn Leu Thr
            760             765             770

cgg gaa gtc agg cca ctc tcc gcc tcg cag ccc tcg ctg ccc cat gag    2406
Arg Glu Val Arg Pro Leu Ser Ala Ser Gln Pro Ser Leu Pro His Glu
        775             780             785

gtg tcc act ctg att tcc aga cct cat ccc act gtg ggc gag tcc ctg    2454
Val Ser Thr Leu Ile Ser Arg Pro His Pro Thr Val Gly Glu Ser Leu
    790             795             800

gcc tcc atc cct caa ccc gtg acg gcg gtc ccc gga acg ggc ctt cag    2502
Ala Ser Ile Pro Gln Pro Val Thr Ala Val Pro Gly Thr Gly Leu Gln
805             810             815             820

gca ggg ggc agg agc act gtc ccg cag cgc gtc acc ctc ttc cga cag    2550
Ala Gly Gly Arg Ser Thr Val Pro Gln Arg Val Thr Leu Phe Arg Gln
            825             830             835

atg tcg tcg gga gcc atc ccc ccg aac cga gga gtc cct cca gca ccc    2598
Met Ser Ser Gly Ala Ile Pro Pro Asn Arg Gly Val Pro Pro Ala Pro
            840             845             850

cct cca cca gca gct gct ctt cca aga gaa tct tcc tca gtc tta aac    2646
Pro Pro Pro Ala Ala Ala Leu Pro Arg Glu Ser Ser Ser Val Leu Asn
        855             860             865

aca gac cca gac gca gaa aag cca cga ttt gct tca aat tta tga       2691
Thr Asp Pro Asp Ala Glu Lys Pro Arg Phe Ala Ser Asn Leu  *
870             875             880

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90

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tctctgactt aagtctagaa gtgaggtttt cacttttatt taatattatt gctattatta 3891
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aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaarrr mrrmmrmaaa aaaaaaaa    4069


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                20                  25                  30
Ala Ala Ala Glu Lys Arg Leu Gly Thr Pro Pro Gly Gly Gly Gly Ala
            35                  40                  45
Gly Ala Lys Glu His Gly Asn Ser Val Cys Phe Lys Val Asp Gly Gly
        50                  55                  60
Gly Gly Glu Glu Pro Ala Gly Gly Phe Glu Asp Ala Glu Gly Pro Arg
65                  70                  75                  80
Arg Gln Tyr Gly Phe Met Gln Arg Gln Phe Thr Ser Met Leu Gln Pro
                85                  90                  95
Gly Val Asn Lys Phe Ser Leu Arg Met Phe Gly Ser Gln Lys Ala Val
            100                 105                 110
Glu Lys Glu Gln Glu Arg Val Lys Thr Ala Gly Phe Trp Ile Ile His
        115                 120                 125
Pro Tyr Ser Asp Phe Arg Phe Tyr Trp Asp Leu Ile Met Leu Ile Met
    130                 135                 140
Met Val Gly Asn Leu Val Ile Ile Pro Val Gly Ile Thr Phe Phe Thr
145                 150                 155                 160
Glu Gln Thr Thr Thr Pro Trp Ile Ile Phe Asn Val Ala Ser Asp Thr
                165                 170                 175
Val Phe Leu Leu Asp Leu Ile Met Asn Phe Arg Thr Gly Thr Val Asn
                180                 185                 190
Glu Asp Ser Ser Glu Ile Ile Leu Asp Pro Lys Val Ile Lys Met Asn
            195                 200                 205
Tyr Leu Lys Ser Trp Phe Val Val Asp Phe Ile Ser Ser Ile Pro Val
    210                 215                 220
Asp Tyr Ile Phe Leu Ile Val Glu Lys Gly Met Asp Ser Glu Val Tyr
225                 230                 235                 240
Lys Thr Ala Arg Xaa Leu Arg Ile Val Arg Phe Thr Lys Ile Leu Ser
            245                 250                 255
Leu Leu Arg Leu Leu Arg Leu Ser Arg Leu Ile Arg Tyr Ile His Gln
            260                 265                 270
Trp Glu Glu Ile Phe His Met Thr Tyr Asp Leu Ala Ser Ala Val Val
            275                 280                 285
Arg Ile Phe Asn Leu Ile Gly Met Met Leu Leu Leu Cys His Trp Asp
    290                 295                 300
Gly Cys Leu Gln Phe Leu Val Pro Leu Leu Gln Asp Phe Pro Pro Asp
305                 310                 315                 320
Cys Trp Val Ser Leu Asn Glu Met Val Asn Asp Ser Trp Gly Lys Gln
                325                 330                 335
Tyr Ser Tyr Ala Leu Phe Lys Ala Met Ser His Met Leu Cys Ile Gly
            340                 345                 350
Tyr Gly Ala Gln Ala Pro Val Ser Met Ser Asp Leu Trp Ile Thr Met
            355                 360                 365
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91

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Leu Ser Met Ile Val Gly Ala Thr Cys Tyr Ala Met Phe Val Gly His
    370                 375             380
Ala Thr Ala Leu Ile Gln Ser Leu Asp Ser Ser Arg Arg Gln Tyr Gln
385                 390             395                     400
Glu Lys Tyr Lys Gln Val Glu Gln Tyr Met Ser Phe His Lys Leu Pro
            405             410                     415
Ala Asp Met Arg Gln Lys Ile His Asp Tyr Tyr Glu His Arg Tyr Gln
        420             425                 430
Gly Lys Ile Phe Asp Glu Glu Asn Ile Leu Asn Glu Leu Asn Asp Pro
        435             440                 445
Leu Arg Glu Glu Ile Val Asn Phe Asn Cys Arg Lys Leu Val Ala Thr
    450             455                 460
Met Pro Leu Phe Ala Asn Ala Asp Pro Asn Phe Val Thr Ala Met Leu
465             470             475                     480
Ser Lys Leu Arg Phe Glu Val Phe Gln Pro Gly Asp Tyr Ile Ile Arg
            485             490                 495
Glu Gly Ala Val Gly Lys Lys Met Tyr Phe Ile Gln His Gly Val Ala
            500             505                 510
Gly Val Ile Thr Lys Ser Ser Lys Glu Met Lys Leu Thr Asp Gly Ser
        515             520                 525
Tyr Phe Gly Glu Ile Cys Leu Leu Thr Lys Gly Arg Arg Thr Ala Ser
    530             535                 540
Val Arg Ala Asp Thr Tyr Cys Arg Leu Tyr Ser Leu Ser Val Asp Asn
545             550             555                     560
Phe Asn Glu Val Leu Glu Glu Tyr Pro Met Met Arg Arg Ala Phe Glu
            565             570                     575
Thr Val Ala Ile Asp Arg Leu Asp Arg Ile Gly Lys Lys Asn Ser Ile
            580             585                 590
Leu Leu Gln Lys Phe Gln Lys Asp Leu Asn Thr Gly Val Phe Asn Asn
    595             600                 605
Gln Glu Asn Glu Ile Leu Lys Gln Ile Val Lys His Asp Arg Glu Met
    610             615                 620
Val Gln Ala Ile Ala Pro Ile Asn Tyr Pro Gln Met Thr Thr Leu Asn
625             630                 635                     640
Ser Thr Ser Ser Thr Thr Thr Pro Thr Ser Arg Met Arg Thr Gln Ser
            645             650                     655
Pro Pro Val Tyr Thr Ala Thr Ser Leu Ser His Ser Asn Leu His Ser
            660             665                 670
Pro Ser Pro Ser Thr Gln Thr Pro Gln Pro Ser Ala Ile Leu Ser Pro
        675             680                 685
Cys Ser Tyr Thr Thr Ala Val Cys Ser Pro Pro Val Gln Ser Pro Leu
    690             695                 700
Ala Ala Arg Thr Phe His Tyr Ala Ser Pro Thr Ala Ser Gln Leu Ser
705             710                 715                     720
Leu Met Gln Gln Gln Pro Gln Gln Gln Val Gln Gln Ser Gln Pro Pro
            725             730                     735
Gln Thr Gln Pro Gln Gln Pro Ser Pro Gln Pro Gln Thr Pro Gly Ser
            740             745                 750
Ser Thr Pro Lys Asn Glu Val His Lys Ser Thr Gln Ala Leu His Asn
    755             760                 765
Thr Asn Leu Thr Arg Glu Val Arg Pro Leu Ser Ala Ser Gln Pro Ser
    770             775                 780
Leu Pro His Glu Val Ser Thr Leu Ile Ser Arg Pro His Pro Thr Val
785             790                 795                     800
Gly Glu Ser Leu Ala Ser Ile Pro Gln Pro Val Thr Ala Val Pro Gly
            805             810                     815
Thr Gly Leu Gln Ala Gly Gly Arg Ser Thr Val Pro Gln Arg Val Thr
            820             825                 830
Leu Phe Arg Gln Met Ser Ser Gly Ala Ile Pro Pro Asn Arg Gly Val
    835             840                 845
Pro Pro Ala Pro Pro Pro Pro Ala Ala Ala Leu Pro Arg Glu Ser Ser
    850             855                 860
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92

Ser Val Leu Asn Thr Asp Pro Asp Ala Glu Lys Pro Arg Phe Ala Ser
865   870   875   880
Asn Leu

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cgg cgg gca ccc ctc cgc cgt ggc gtc ggc agc agt ccc cga gcc cgc   101
Arg Arg Ala Pro Leu Arg Arg Gly Val Gly Ser Ser Pro Arg Ala Arg
            10   15   20

agg ctc atg cgg ccc ctt tgg ttg ctc ctc gca gtg ggc gtc ttt gac   149
Arg Leu Met Arg Pro Leu Trp Leu Leu Leu Ala Val Gly Val Phe Asp
        25   30   35

tgg gca ggg gct tcg gac ggc ggc ggc gga gag gct aga gcc atg gac   197
Trp Ala Gly Ala Ser Asp Gly Gly Gly Gly Glu Ala Arg Ala Met Asp
    40   45   50

gag gag atc gtg tcc gag aag caa gcc gag gag agc cac cgg cag gac   245
Glu Glu Ile Val Ser Glu Lys Gln Ala Glu Glu Ser His Arg Gln Asp
 55   60   65   70

agc gcc aac ctg ctc atc ttc atc ctg ctg ctc acc ctc acc att ctc   293
Ser Ala Asn Leu Leu Ile Phe Ile Leu Leu Leu Thr Leu Thr Ile Leu
                75   80   85

aca atc tgg ctc ttc aag cac cgc cgg gcc cgc ttc ctg cac gaa acc   341
Thr Ile Trp Leu Phe Lys His Arg Arg Ala Arg Phe Leu His Glu Thr
                90   95   100

ggc ctg gct atg att tat ggt ctt ttg gtg ggc ctt gtg ctt cgg tat   389
Gly Leu Ala Met Ile Tyr Gly Leu Leu Val Gly Leu Val Leu Arg Tyr
            105   110   115

ggc att cat gtt ccg agt gat gta aat aat gtg acc ctg agc tgt gaa   437
Gly Ile His Val Pro Ser Asp Val Asn Asn Val Thr Leu Ser Cys Glu
        120   125   130

gtg cag tca agt cca act acc tta ctg gtt act ttt gat cca gaa gta   485
Val Gln Ser Ser Pro Thr Thr Leu Leu Val Thr Phe Asp Pro Glu Val
135   140   145   150

ttt ttc aac ata tta ctt cct cct atc ata ttt tat gca ggt tat agc   533
Phe Phe Asn Ile Leu Leu Pro Pro Ile Ile Phe Tyr Ala Gly Tyr Ser
                155   160   165

ctg aaa agg aga cat ttt ttt cga aat ctt ggg tct atc cta gca tac   581
Leu Lys Arg Arg His Phe Phe Arg Asn Leu Gly Ser Ile Leu Ala Tyr

93

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gct ttt ctt gga aca gca att tct tgt ttc gtt att ggg tca ata atg    629
Ala Phe Leu Gly Thr Ala Ile Ser Cys Phe Val Ile Gly Ser Ile Met
        185                 190                 195

tat ggc tgt gta acg ctg atg aag gta acg gga caa ctt gca gga gat    677
Tyr Gly Cys Val Thr Leu Met Lys Val Thr Gly Gln Leu Ala Gly Asp
    200                 205                 210

ttt tac ttt aca gat tgc cta ctg ttt ggt gcc att gta tca gca act    725
Phe Tyr Phe Thr Asp Cys Leu Leu Phe Gly Ala Ile Val Ser Ala Thr
215                 220                 225                 230

gat cca gtg act gtt ctt gct ata ttc cac gag ctt caa gtt gat gtt    773
Asp Pro Val Thr Val Leu Ala Ile Phe His Glu Leu Gln Val Asp Val
            235                 240                 245

gaa ctc tat gca ctt ctt ttt ggt gaa agt gtc ctc aat gat gct gtt    821
Glu Leu Tyr Ala Leu Leu Phe Gly Glu Ser Val Leu Asn Asp Ala Val
            250                 255                 260

gcc ata gtg ctg tcc tcc tca ata gtg gca tac cag cca gct gga gac    869
Ala Ile Val Leu Ser Ser Ser Ile Val Ala Tyr Gln Pro Ala Gly Asp
            265                 270                 275

aac agt cac acc ttt gat gtc aca gcg atg ttc aag tct att ggg atc    917
Asn Ser His Thr Phe Asp Val Thr Ala Met Phe Lys Ser Ile Gly Ile
    280                 285                 290

ttc ctt gga atc ttc agt gga tct ttt gca atg ggt gct gct act gga    965
Phe Leu Gly Ile Phe Ser Gly Ser Phe Ala Met Gly Ala Ala Thr Gly
295                 300                 305                 310

gtg gtg aca gct tta gtg aca aag ttc acc aaa tta cgg gag ttc cag    1013
Val Val Thr Ala Leu Val Thr Lys Phe Thr Lys Leu Arg Glu Phe Gln
            315                 320                 325

ttg ttg gag aca ggc ctg ttc ttc ttg atg tcc tgg agt acc ttc ctc    1061
Leu Leu Glu Thr Gly Leu Phe Phe Leu Met Ser Trp Ser Thr Phe Leu
            330                 335                 340

ttg gct gaa gca tgg ggc ttc aca ggt gta gtt gca gta ttg ttt tgt    1109
Leu Ala Glu Ala Trp Gly Phe Thr Gly Val Val Ala Val Leu Phe Cys
            345                 350                 355

ggc atc aca caa gca cat tat acg tat aat aat ttg tcc acg gag tct    1157
Gly Ile Thr Gln Ala His Tyr Thr Tyr Asn Asn Leu Ser Thr Glu Ser
    360                 365                 370

cag cat aga act aaa cag ttg ttt gag ctt ctc aat ttc ttg gca gag    1205
Gln His Arg Thr Lys Gln Leu Phe Glu Leu Leu Asn Phe Leu Ala Glu
375                 380                 385                 390

aat ttc atc ttc tcc tac atg ggg ctg aca ctg ttc acc ttc cag aac    1253
Asn Phe Ile Phe Ser Tyr Met Gly Leu Thr Leu Phe Thr Phe Gln Asn
            395                 400                 405

cat gtc ttt aac cca aca ttt gta gta gga gca ttt gtt gct att ttc    1301
His Val Phe Asn Pro Thr Phe Val Val Gly Ala Phe Val Ala Ile Phe
            410                 415                 420
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94

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ttg gga aga gct gcc aat att tac ccc ttg tcc ctc tta ctt aat ttg      1349
Leu Gly Arg Ala Ala Asn Ile Tyr Pro Leu Ser Leu Leu Leu Asn Leu
        425             430                 435

ggt aga aga agt aag att gga tca aat ttt caa cac atg atg atg ttt      1397
Gly Arg Arg Ser Lys Ile Gly Ser Asn Phe Gln His Met Met Met Phe
        440             445                 450

gct ggc ctt cgt ggt gca atg gca ttt gcc ttg gcc att cga gat act      1445
Ala Gly Leu Arg Gly Ala Met Ala Phe Ala Leu Ala Ile Arg Asp Thr
455             460                 465                 470

gcc act tat gca cgg caa atg atg ttc agc acc acg ctt ctg att gtg      1493
Ala Thr Tyr Ala Arg Gln Met Met Phe Ser Thr Thr Leu Leu Ile Val
            475                 480                 485

ttt ttt acc gtg tgg gta ttt ggt ggt ggc acc act gca atg ctg tca      1541
Phe Phe Thr Val Trp Val Phe Gly Gly Gly Thr Thr Ala Met Leu Ser
            490                 495                 500

tgc ttg cat atc agg gtt ggt gtt gat tca gac caa gaa cac ttg ggt      1589
Cys Leu His Ile Arg Val Gly Val Asp Ser Asp Gln Glu His Leu Gly
            505                 510                 515

gtt cct gaa aat gaa agg aga act acc aaa gca gag agt gct tgg ctt      1637
Val Pro Glu Asn Glu Arg Arg Thr Thr Lys Ala Glu Ser Ala Trp Leu
        520                 525                 530

ttc cgg atg tgg tac aac ttt gat cat aac tat ctg aag cct ctg ctg      1685
Phe Arg Met Trp Tyr Asn Phe Asp His Asn Tyr Leu Lys Pro Leu Leu
535             540                 545                 550

acc cac agc ggg cct ccg ctg aca aca aca ctc cct gcc tgc tgt gga      1733
Thr His Ser Gly Pro Pro Leu Thr Thr Thr Leu Pro Ala Cys Cys Gly
            555                 560                 565

ccc atc gcc agg tgc ctc acc agc ccc cag gct tac gaa aac cag gaa      1781
Pro Ile Ala Arg Cys Leu Thr Ser Pro Gln Ala Tyr Glu Asn Gln Glu
            570                 575                 580

cag ttg aaa gat gat gat tct gat ctt att ctc aat gat ggt gac atc      1829
Gln Leu Lys Asp Asp Asp Ser Asp Leu Ile Leu Asn Asp Gly Asp Ile
        585                 590                 595

agt ttg aca tat gga gat tct act gtg aac act gaa ccg gcc aca tcc      1877
Ser Leu Thr Tyr Gly Asp Ser Thr Val Asn Thr Glu Pro Ala Thr Ser
        600                 605                 610

agc gcc cca agg aga ttt atg gga aac agt tct gaa gat gcc ttg gat      1925
Ser Ala Pro Arg Arg Phe Met Gly Asn Ser Ser Glu Asp Ala Leu Asp
615             620                 625                 630

cgg gag ctt gca ttt ggg gac cat gaa ctg gtc att cga gga aca cgc      1973
Arg Glu Leu Ala Phe Gly Asp His Glu Leu Val Ile Arg Gly Thr Arg
            635                 640                 645

ctg gtt ctt cca atg gat gat tct gaa ccc ccg cta aat ttg tta gat      2021
Leu Val Leu Pro Met Asp Asp Ser Glu Pro Pro Leu Asn Leu Leu Asp
            650                 655                 660

aat acg aga cat ggt cca gcc taa gcttactaat actcacttag tgatttgtaa   2075
Asn Thr Arg His Gly Pro Ala  *
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665

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<210> 40
<211> 669
<212> PRT
<213> Homo Sapiens

<400> 40
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            20                  25                  30
Ala Val Gly Val Phe Asp Trp Ala Gly Ala Ser Asp Gly Gly Gly Gly
            35                  40                  45
Glu Ala Arg Ala Met Asp Glu Glu Ile Val Ser Glu Lys Gln Ala Glu
        50                  55                  60
Glu Ser His Arg Gln Asp Ser Ala Asn Leu Leu Ile Phe Ile Leu Leu
65                  70                  75                  80
Leu Thr Leu Thr Ile Leu Thr Ile Trp Leu Phe Lys His Arg Arg Ala
                85                  90                  95
Arg Phe Leu His Glu Thr Gly Leu Ala Met Ile Tyr Gly Leu Leu Val
```

96

```
                100                      105                      110
Gly Leu Val Leu Arg Tyr Gly Ile His Val Pro Ser Asp Val Asn Asn
        115                      120                      125
Val Thr Leu Ser Cys Glu Val Gln Ser Ser Pro Thr Thr Leu Leu Val
    130                      135                      140
Thr Phe Asp Pro Glu Val Phe Phe Asn Ile Leu Leu Pro Pro Ile Ile
145                      150                      155                      160
Phe Tyr Ala Gly Tyr Ser Leu Lys Arg Arg His Phe Phe Arg Asn Leu
                165                      170                      175
Gly Ser Ile Leu Ala Tyr Ala Phe Leu Gly Thr Ala Ile Ser Cys Phe
            180                      185                      190
Val Ile Gly Ser Ile Met Tyr Gly Cys Val Thr Leu Met Lys Val Thr
    .195                      200                      205
Gly Gln Leu Ala Gly Asp Phe Tyr Phe Thr Asp Cys Leu Leu Phe Gly
    .210                      215                      220
Ala Ile Val Ser Ala Thr Asp Pro Val Thr Val Leu Ala Ile Phe His
225                      230                      235                      240
Glu Leu Gln Val Asp Val Glu Leu Tyr Ala Leu Leu Phe Gly Glu Ser
                245                      250                      255
Val Leu Asn Asp Ala Val Ala Ile Val Leu Ser Ser Ser Ile Val Ala
            260                      265                      270
Tyr Gln Pro Ala Gly Asp Asn Ser His Thr Phe Asp Val Thr Ala Met
    275                      280                      285
Phe Lys Ser Ile Gly Ile Phe Leu Gly Ile Phe Ser Gly Ser Phe Ala
    290                      295                      300
Met Gly Ala Ala Thr Gly Val Val Thr Ala Leu Val Thr Lys Phe Thr
305                      310                      315                      320
Lys Leu Arg Glu Phe Gln Leu Leu Glu Thr Gly Leu Phe Phe Leu Met
            325                      330                      335
Ser Trp Ser Thr Phe Leu Leu Ala Glu Ala Trp Gly Phe Thr Gly Val
            340                      345                      350
Val Ala Val Leu Phe Cys Gly Ile Thr Gln Ala His Tyr Thr Tyr Asn
    355                      360                      365
Asn Leu Ser Thr Glu Ser Gln His Arg Thr Lys Gln Leu Phe Glu Leu
    370                      375                      380
Leu Asn Phe Leu Ala Glu Asn Phe Ile Phe Ser Tyr Met Gly Leu Thr
385                      390                      395                      400
Leu Phe Thr Phe Gln Asn His Val Phe Asn Pro Thr Phe Val Val Gly
            405                      410                      415
Ala Phe Val Ala Ile Phe Leu Gly Arg Ala Ala Asn Ile Tyr Pro Leu
            420                      425                      430
Ser Leu Leu Leu Asn Leu Gly Arg Arg Ser Lys Ile Gly Ser Asn Phe
        435                      440                      445
Gln His Met Met Met Phe Ala Gly Leu Arg Gly Ala Met Ala Phe Ala
    450                      455                      460
Leu Ala Ile Arg Asp Thr Ala Thr Tyr Ala Arg Gln Met Met Phe Ser
465                      470                      475                      480
Thr Thr Leu Leu Ile Val Phe Phe Thr Val Trp Val Phe Gly Gly Gly
            485                      490                      495
Thr Thr Ala Met Leu Ser Cys Leu His Ile Arg Val Gly Val Asp Ser
        500                      505                      510
Asp Gln Glu His Leu Gly Val Pro Glu Asn Glu Arg Arg Thr Thr Lys
    515                      520                      525
Ala Glu Ser Ala Trp Leu Phe Arg Met Trp Tyr Asn Phe Asp His Asn
    530                      535                      540
Tyr Leu Lys Pro Leu Leu Thr His Ser Gly Pro Pro Leu Thr Thr Thr
545                      550                      555                      560
Leu Pro Ala Cys Cys Gly Pro Ile Ala Arg Cys Leu Thr Ser Pro Gln
            565                      570                      575
Ala Tyr Glu Asn Gln Glu Gln Leu Lys Asp Asp Asp Ser Asp Leu Ile
        580                      585                      590
Leu Asn Asp Gly Asp Ile Ser Leu Thr Tyr Gly Asp Ser Thr Val Asn
```

97

```
            595                    600                    605
Thr Glu Pro Ala Thr Ser Ser Ala Pro Arg Arg Phe Met Gly Asn Ser
    610                    615                    620
Ser Glu Asp Ala Leu Asp Arg Glu Leu Ala Phe Gly Asp His Glu Leu
625                    630                    635                    640
Val Ile Arg Gly Thr Arg Leu Val Leu Pro Met Asp Asp Ser Glu Pro
                   645                    650                    655
Pro Leu Asn Leu Leu Asp Asn Thr Arg His Gly Pro Ala
               660                    665


<210> 41
<211> 3116
<212> DNA
<213> Homo Sapiens

<220>
<221> CDS
<222> (205)...(2493)

<400> 41
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agagaaaagg agccaggctg ggcttcctga tcccacagca tcgcagagct cgggaggcac 120
agctcacaga cacaggaaac acaggactgc tattctgctc tcctgcccac ggtgatctgg 180
tgccagctgg tggaacagtg ggtg atg gcg tcc ctg ctg caa gac cag ctg   231
                        Met Ala Ser Leu Leu Gln Asp Gln Leu
                        1               5


acc act gat cag gac ttg ctg ctg atg cag gaa ggc atg ccg atg cgc   279
Thr Thr Asp Gln Asp Leu Leu Leu Met Gln Glu Gly Met Pro Met Arg
 10                  15                  20                  25

aag gtg agg tcc aaa agc tgg aag aag cta aga tac ttc aga ctt cag   327
Lys Val Arg Ser Lys Ser Trp Lys Lys Leu Arg Tyr Phe Arg Leu Gln
                30                  35                  40

aat gac ggc atg aca gtc tgg cat gca cgg cag gcc agg ggc agt gcc   375
Asn Asp Gly Met Thr Val Trp His Ala Arg Gln Ala Arg Gly Ser Ala
            45                  50                  55

aag ccc agc ttc tca atc tct gat gtg gag aca ata cgt aat ggc cat   423
Lys Pro Ser Phe Ser Ile Ser Asp Val Glu Thr Ile Arg Asn Gly His
            60                  65                  70

gat tcc gag ttg ctg cgt agc ctg gca gag gag ctc ccc ctg gag cag   471
Asp Ser Glu Leu Leu Arg Ser Leu Ala Glu Glu Leu Pro Leu Glu Gln
     75                  80                  85

ggc ttc acc att gtc ttc cat ggc cgc cgc tcc aac ctg gac ctg atg   519
Gly Phe Thr Ile Val Phe His Gly Arg Arg Ser Asn Leu Asp Leu Met
 90                  95                  100                 105

gcc aac agt gtt gag gag gcc cag ata tgg atg cga ggg ctc cag ctg   567
Ala Asn Ser Val Glu Glu Ala Gln Ile Trp Met Arg Gly Leu Gln Leu
                110                 115                 120

ttg gtg gat ctt gtc acc agc atg gac cat cag gag cgc ctg gac caa   615
Leu Val Asp Leu Val Thr Ser Met Asp His Gln Glu Arg Leu Asp Gln
            125                 130                 135

tgg ctg agc gat tgg ttt caa cgt gga gac aaa aat cag gat ggt aag   663
Trp Leu Ser Asp Trp Phe Gln Arg Gly Asp Lys Asn Gln Asp Gly Lys
```

98

```
atg agt ttc caa gaa gtt cag cgg tta ttg cac cta atg aat gtg gaa    711
Met Ser Phe Gln Glu Val Gln Arg Leu Leu His Leu Met Asn Val Glu
    155                 160                 165

atg gac caa gaa tat gcc ttc agt ctt ttt cag gca gca gac acg tcc    759
Met Asp Gln Glu Tyr Ala Phe Ser Leu Phe Gln Ala Ala Asp Thr Ser
170                 175                 180                 185

cag tct gga acc ctg gaa gga gaa gaa ttc gta cag ttc tat aag gca    807
Gln Ser Gly Thr Leu Glu Gly Glu Glu Phe Val Gln Phe Tyr Lys Ala
                190                 195                 200

ttg act aaa cgt gct gag gtg cag gaa ctg ttt gaa agt ttt tca gct    855
Leu Thr Lys Arg Ala Glu Val Gln Glu Leu Phe Glu Ser Phe Ser Ala
            205                 210                 215

gat ggg cag aag ctg act ctg ctg gaa ttt ttg gat ttc ctc caa gag    903
Asp Gly Gln Lys Leu Thr Leu Leu Glu Phe Leu Asp Phe Leu Gln Glu
            220                 225                 230

gag cag aag gag aga gac tgc acc tct gag ctt gct ctg gaa ctc att    951
Glu Gln Lys Glu Arg Asp Cys Thr Ser Glu Leu Ala Leu Glu Leu Ile
            235                 240                 245

gac cgc tat gaa cct tca gac agt ggc aaa ctg cgg cat gtg ctg agt    999
Asp Arg Tyr Glu Pro Ser Asp Ser Gly Lys Leu Arg His Val Leu Ser
250                 255                 260                 265

atg gat ggc ttc ctc agc tac ctc tgc tct aag gat gga gac atc ttc    1047
Met Asp Gly Phe Leu Ser Tyr Leu Cys Ser Lys Asp Gly Asp Ile Phe
                270                 275                 280

aac cca gcc tgc ctc ccc atc tat cag gat atg act caa ccc ctg aac    1095
Asn Pro Ala Cys Leu Pro Ile Tyr Gln Asp Met Thr Gln Pro Leu Asn
                285                 290                 295

cac tac ttc atc tgc tct tct cat aac acc tac cta gtg ggg gac cag    1143
His Tyr Phe Ile Cys Ser Ser His Asn Thr Tyr Leu Val Gly Asp Gln
            300                 305                 310

ctt tgc ggc cag agc agc gtc gag gga tat ata cgg gcc ctg aag cgg    1191
Leu Cys Gly Gln Ser Ser Val Glu Gly Tyr Ile Arg Ala Leu Lys Arg
    315                 320                 325

ggg tgc cgc tgc gtg gag gtg gat gta tgg gat gga cct agc ggg gaa    1239
Gly Cys Arg Cys Val Glu Val Asp Val Trp Asp Gly Pro Ser Gly Glu
330                 335                 340                 345

cct gtc gtt tac cac gga cac acc ctg acc tcc cgc atc ctg ttc aaa    1287
Pro Val Val Tyr His Gly His Thr Leu Thr Ser Arg Ile Leu Phe Lys
            350                 355                 360

gat gtc gtg gcc aca gta gca cag tat gcc ttc cag aca tca gac tac    1335
Asp Val Val Ala Thr Val Ala Gln Tyr Ala Phe Gln Thr Ser Asp Tyr
            365                 370                 375

cca gtc atc ttg tcc ctg gag acc cac tgc agc tgg gag cag cag cag    1383
Pro Val Ile Leu Ser Leu Glu Thr His Cys Ser Trp Glu Gln Gln Gln
            380                 385                 390
```

99

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acc atg gcc cgt cat ctg act gag atc ctg ggg gag cag ctg ctg agc    1431
Thr Met Ala Arg His Leu Thr Glu Ile Leu Gly Glu Gln Leu Leu Ser
    395                 400             405

acc acc ttg gat ggg gtg ctg ccc act cag ctg ccc tcg cct gag gag    1479
Thr Thr Leu Asp Gly Val Leu Pro Thr Gln Leu Pro Ser Pro Glu Glu
410             415             420             425

ctt cgg agg aag atc ctg gtg aag ggg aag aag tta aca ctt gag gaa    1527
Leu Arg Arg Lys Ile Leu Val Lys Gly Lys Lys Leu Thr Leu Glu Glu
                430             435             440

gac ctg gaa tat gag gaa gag gaa gca gaa cct gag ttg gaa gag tca    1575
Asp Leu Glu Tyr Glu Glu Glu Glu Ala Glu Pro Glu Leu Glu Glu Ser
            445             450             455

gaa ttg gcg ctg gag tcc cag ttt gag act gag cct gag ccc cag gag    1623
Glu Leu Ala Leu Glu Ser Gln Phe Glu Thr Glu Pro Glu Pro Gln Glu
        460             465             470

cag aac ctt cag aat aag gac aaa aag aag aaa tcc aag ccc atc ttg    1671
Gln Asn Leu Gln Asn Lys Asp Lys Lys Lys Ser Lys Pro Ile Leu
    475             480             485

tgt cca gcc ctc tct tcc ctg gtt atc tac ttg aag tct gtc tca ttc    1719
Cys Pro Ala Leu Ser Ser Leu Val Ile Tyr Leu Lys Ser Val Ser Phe
490             495             500             505

cgc agc ttc aca cat tca aag gag cac tac cac ttc tac gag ata tca    1767
Arg Ser Phe Thr His Ser Lys Glu His Tyr His Phe Tyr Glu Ile Ser
            510             515             520

tct ttc tct gaa acc aag gcc aag cgc ctc atc aag gag gct ggc aat    1815
Ser Phe Ser Glu Thr Lys Ala Lys Arg Leu Ile Lys Glu Ala Gly Asn
            525             530             535

gag ttt gtg cag cac aat act tgg cag tta agc cgt gtg tat ccc agc    1863
Glu Phe Val Gln His Asn Thr Trp Gln Leu Ser Arg Val Tyr Pro Ser
        540             545             550

ggc ctg agg aca gac tct tcc aac tac aac ccc cag gaa ctc tgg aat    1911
Gly Leu Arg Thr Asp Ser Ser Asn Tyr Asn Pro Gln Glu Leu Trp Asn
    555             560             565

gca ggc tgc cag atg gtg gcc atg aat atg cag act gca ggg ctt gaa    1959
Ala Gly Cys Gln Met Val Ala Met Asn Met Gln Thr Ala Gly Leu Glu
570             575             580             585

atg gac atc tgt gat ggg cat ttc cgc cag aat ggc ggc tgt ggc tat    2007
Met Asp Ile Cys Asp Gly His Phe Arg Gln Asn Gly Gly Cys Gly Tyr
            590             595             600

gtg ctg aag cca gac ttc ctg cgt gat atc cag agt tct ttc cac cct    2055
Val Leu Lys Pro Asp Phe Leu Arg Asp Ile Gln Ser Ser Phe His Pro
            605             610             615

gag aag ccc atc agc cct ttc aaa gcc cag act ctc tta atc cag gtg    2103
Glu Lys Pro Ile Ser Pro Phe Lys Ala Gln Thr Leu Leu Ile Gln Val
            620             625             630

atc agc ggt cag caa ctc ccc aaa gtg gac aag acc aaa gag ggg tcc    2151
Ile Ser Gly Gln Gln Leu Pro Lys Val Asp Lys Thr Lys Glu Gly Ser
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100

```
att gtg gat cca ctg gtg aaa gtg cag atc ttt ggc gtt cgt cta gac  2199
Ile Val Asp Pro Leu Val Lys Val Gln Ile Phe Gly Val Arg Leu Asp
650                 655                 660                 665

aca gca cgg cag gag acc aac tat gtg gag aac aat ggt ttt aat cca  2247
Thr Ala Arg Gln Glu Thr Asn Tyr Val Glu Asn Asn Gly Phe Asn Pro
                670                 675                 680

tac tgg ggg cag aca cta tgt ttc cgg gtg ctg gtg cct gaa ctt gcc  2295
Tyr Trp Gly Gln Thr Leu Cys Phe Arg Val Leu Val Pro Glu Leu Ala
            685                 690                 695

atg ctg cgt ttt gtg gta atg gat tat gac tgg aaa tcc cga aat gac  2343
Met Leu Arg Phe Val Val Met Asp Tyr Asp Trp Lys Ser Arg Asn Asp
        700                 705                 710

ttt att ggt cag tac acc ctg cct tgg acc tgc atg caa caa ggt tac  2391
Phe Ile Gly Gln Tyr Thr Leu Pro Trp Thr Cys Met Gln Gln Gly Tyr
    715                 720                 725

cgc cac att cac ctg ctg tcc aaa gat ggc atc agc ctc cgc cca gct  2439
Arg His Ile His Leu Leu Ser Lys Asp Gly Ile Ser Leu Arg Pro Ala
730                 735                 740                 745

tcc atc ttt gtg tat atc tgc atc cag gaa ggc ctg gag ggg gat gag  2487
Ser Ile Phe Val Tyr Ile Cys Ile Gln Glu Gly Leu Glu Gly Asp Glu
                750                 755                 760

tcc tga ggtgggcatt tcacgggaag ggttggtatg ctggctttag acggggagaa  2543
Ser  *


acatctggaa ggatgctcga gagaacaaat ggaggtggtg aaaatcaagc tttggattgt 2603
gcattcctag gcacaaaatt acctcattct tcctaacaag caatctggga cctgattttc 2663
cacctttttt ctcttttctt cccttccttt gttttcataa gcctttggta tctttcctgc 2723
ccttttcctt tgtgtactct atactggagt tcccttcttc ctcttgctgt aggctcaatc 2783
ccataccgac atctacaact aatctttccc atcaactctg tgtgaaggca ggttgcaact 2843
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acttcctcaa agcccaaagc caagggaagg ataaatcaag gctcaaggct tccccagcaa 2963
agattaggga aagagacttg accccaggac tgtactacga ctcttaagag aacactgcac 3023
agcactcaaa gtcccccact ggactgcttc ctccttagcc ccactggtat aaatacatct 3083
ctctccaatt tggcaaaaaa aaaaaaaaaa aaa                              3116
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<210> 42
<211> 762
<212> PRT
<213> Homo Sapiens

<400> 42
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Met Ala Ser Leu Leu Gln Asp Gln Leu Thr Thr Asp Gln Asp Leu Leu
 1               5                  10                  15
Leu Met Gln Glu Gly Met Pro Met Arg Lys Val Arg Ser Lys Ser Trp
                20                  25                  30
Lys Lys Leu Arg Tyr Phe Arg Leu Gln Asn Asp Gly Met Thr Val Trp
            35                  40                  45
His Ala Arg Gln Ala Arg Gly Ser Ala Lys Pro Ser Phe Ser Ile Ser
    50                  55                  60
Asp Val Glu Thr Ile Arg Asn Gly His Asp Ser Glu Leu Leu Arg Ser
65                  70                  75                  80
Leu Ala Glu Glu Leu Pro Leu Glu Gln Gly Phe Thr Ile Val Phe His
```

101

```
                        85                      90                      95
Gly Arg Arg Ser Asn Leu Asp Leu Met Ala Asn Ser Val Glu Glu Ala
                100                     105                     110
Gln Ile Trp Met Arg Gly Leu Gln Leu Leu Val Asp Leu Val Thr Ser
                115                     120                     125
Met Asp His Gln Glu Arg Leu Asp Gln Trp Leu Ser Asp Trp Phe Gln
    130                     135                     140
Arg Gly Asp Lys Asn Gln Asp Gly Lys Met Ser Phe Gln Glu Val Gln
145                     150                     155                     160
Arg Leu Leu His Leu Met Asn Val Glu Met Asp Gln Glu Tyr Ala Phe
                165                     170                     175
Ser Leu Phe Gln Ala Ala Asp Thr Ser Gln Ser Gly Thr Leu Glu Gly
                180                     185                     190
Glu Glu Phe Val Gln Phe Tyr Lys Ala Leu Thr Lys Arg Ala Glu Val
                195                     200                     205
Gln Glu Leu Phe Glu Ser Phe Ser Ala Asp Gly Gln Lys Leu Thr Leu
    210                     215                     220
Leu Glu Phe Leu Asp Phe Leu Gln Glu Glu Gln Lys Glu Arg Asp Cys
225                     230                     235                     240
Thr Ser Glu Leu Ala Leu Glu Leu Ile Asp Arg Tyr Glu Pro Ser Asp
                245                     250                     255
Ser Gly Lys Leu Arg His Val Leu Ser Met Asp Gly Phe Leu Ser Tyr
                260                     265                     270
Leu Cys Ser Lys Asp Gly Asp Ile Phe Asn Pro Ala Cys Leu Pro Ile
                275                     280                     285
Tyr Gln Asp Met Thr Gln Pro Leu Asn His Tyr Phe Ile Cys Ser Ser
    290                     295                     300
His Asn Thr Tyr Leu Val Gly Asp Gln Leu Cys Gly Gln Ser Ser Val
305                     310                     315                     320
Glu Gly Tyr Ile Arg Ala Leu Lys Arg Gly Cys Arg Cys Val Glu Val
                325                     330                     335
Asp Val Trp Asp Gly Pro Ser Gly Glu Pro Val Val Tyr His Gly His
                340                     345                     350
Thr Leu Thr Ser Arg Ile Leu Phe Lys Asp Val Val Ala Thr Val Ala
                355                     360                     365
Gln Tyr Ala Phe Gln Thr Ser Asp Tyr Pro Val Ile Leu Ser Leu Glu
    370                     375                     380
Thr His Cys Ser Trp Glu Gln Gln Gln Thr Met Ala Arg His Leu Thr
385                     390                     395                     400
Glu Ile Leu Gly Glu Gln Leu Leu Ser Thr Thr Leu Asp Gly Val Leu
                405                     410                     415
Pro Thr Gln Leu Pro Ser Pro Glu Glu Leu Arg Arg Lys Ile Leu Val
                420                     425                     430
Lys Gly Lys Lys Leu Thr Leu Glu Glu Asp Leu Glu Tyr Glu Glu Glu
                435                     440                     445
Glu Ala Glu Pro Glu Leu Glu Glu Ser Glu Leu Ala Leu Glu Ser Gln
    450                     455                     460
Phe Glu Thr Glu Pro Glu Pro Gln Glu Gln Asn Leu Gln Asn Lys Asp
465                     470                     475                     480
Lys Lys Lys Lys Ser Lys Pro Ile Leu Cys Pro Ala Leu Ser Ser Leu
                485                     490                     495
Val Ile Tyr Leu Lys Ser Val Ser Phe Arg Ser Phe Thr His Ser Lys
                500                     505                     510
Glu His Tyr His Phe Tyr Glu Ile Ser Ser Phe Ser Glu Thr Lys Ala
                515                     520                     525
Lys Arg Leu Ile Lys Glu Ala Gly Asn Glu Phe Val Gln His Asn Thr
    530                     535                     540
Trp Gln Leu Ser Arg Val Tyr Pro Ser Gly Leu Arg Thr Asp Ser Ser
545                     550                     555                     560
Asn Tyr Asn Pro Gln Glu Leu Trp Asn Ala Gly Cys Gln Met Val Ala
                565                     570                     575
Met Asn Met Gln Thr Ala Gly Leu Glu Met Asp Ile Cys Asp Gly His
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102

```
                580                        585                        590
Phe Arg Gln Asn Gly Gly Cys Gly Tyr Val Leu Lys Pro Asp Phe Leu
           595                        600                   605
Arg Asp Ile Gln Ser Ser Phe His Pro Glu Lys Pro Ile Ser Pro Phe
       610                        615                   620
Lys Ala Gln Thr Leu Leu Ile Gln Val Ile Ser Gly Gln Gln Leu Pro
625                        630                   635                   640
Lys Val Asp Lys Thr Lys Glu Gly Ser Ile Val Asp Pro Leu Val Lys
               645                        650                   655
Val Gln Ile Phe Gly Val Arg Leu Asp Thr Ala Arg Gln Glu Thr Asn
           660                        665                   670
Tyr Val Glu Asn Asn Gly Phe Asn Pro Tyr Trp Gly Gln Thr Leu Cys
       675                        680                   685
Phe Arg Val Leu Val Pro Glu Leu Ala Met Leu Arg Phe Val Val Met
   690                        695                   700
Asp Tyr Asp Trp Lys Ser Arg Asn Asp Phe Ile Gly Gln Tyr Thr Leu
705                        710                   715                   720
Pro Trp Thr Cys Met Gln Gln Gly Tyr Arg His Ile His Leu Leu Ser
               725                        730                   735
Lys Asp Gly Ile Ser Leu Arg Pro Ala Ser Ile Phe Val Tyr Ile Cys
               740                        745                   750
Ile Gln Glu Gly Leu Glu Gly Asp Glu Ser
           755                        760


<210> 43
<211> 1943
<212> DNA
<213> Homo Sapiens

<220>
<221> CDS
<222> (466)...(1758)

<400> 43
gggggctctc tccacgcctt gctgccgcgt cccggtccta ggcgcccggg atccacggcc 60
caccccgccc gcagcccgcg gcctgtctgg agaggagtat gaggcccggg gccccgcgga 120
cgccggccac cgggcggcag gggcctagct gcggagcccc gcgcccgaga gcggcgggta 180
aggagccgcg ggagccggcg aggcgtcggg gcgcgcagag gagcgcccct gcccgggcac 240
ccgctgggcc acgggactcg cgtgtggcct gagcgccggg gaggaggcgg aggcgcccct 300
ctgtccgggc tctgggaagg caacgagggg ctctgcgaag gcggcgaggg gctccgcggc 360
ggccccggac ccctggccac catcctcacg ctcctgctcc cgccgggggg atgtcgtggc 420
ccgggccccg agcgccgccc cggccccggg gctgagctcc ggacc atg tcc tcc cgc 477
                                                   Met Ser Ser Arg
                                                    1

agc ccc cgg ccc ccg ccc cgc cgt agc cgc cgc cgc ctg ccg cgc ccc 525
Ser Pro Arg Pro Pro Pro Arg Arg Ser Arg Arg Arg Leu Pro Arg Pro
 5                  10                  15                  20

tcc tgc tgc tgc tgc tgc tgc cgc cgt tcg cac ctc aac gag gac acc 573
Ser Cys Cys Cys Cys Cys Cys Arg Arg Ser His Leu Asn Glu Asp Thr
                        25                  30                  35

ggc cgc ttc gtg ctg ctg gcg gcg ctc atc ggc ctc tac ctg gtg gcg 621
Gly Arg Phe Val Leu Leu Ala Ala Leu Ile Gly Leu Tyr Leu Val Ala
                    40                  45                  50

ggt gcc aca gtc ttc tcg gcg ctc gag agc ccc ggc gag gcg gag gcg 669
Gly Ala Thr Val Phe Ser Ala Leu Glu Ser Pro Gly Glu Ala Glu Ala
                55                  60                  65
```

103

```
cgg gcg cgc tgg ggc gcc acg ctg cgc aac ttc agc gct gcg cac ggc    717
Arg Ala Arg Trp Gly Ala Thr Leu Arg Asn Phe Ser Ala Ala His Gly
     70              75              80

gtg gcc gag cca gag ctg cgc gcc ttc ctc cgg cac tac gag gcc gcg    765
Val Ala Glu Pro Glu Leu Arg Ala Phe Leu Arg His Tyr Glu Ala Ala
 85              90              95              100

ctg gcc gcc ggc gtc cgc gcc gac gcg ctg cgc ccg cgc tgg gac ttc    813
Leu Ala Ala Gly Val Arg Ala Asp Ala Leu Arg Pro Arg Trp Asp Phe
             105             110             115

ccc ggc gcc ttc tac ttc gtg ggc acc gtg gtg tca acc ata ggt ttc    861
Pro Gly Ala Phe Tyr Phe Val Gly Thr Val Val Ser Thr Ile Gly Phe
             120             125             130

ggc atg acc acc ccc gcg acg gtg ggc ggg aag gcc ttc ctc atc gcc    909
Gly Met Thr Thr Pro Ala Thr Val Gly Gly Lys Ala Phe Leu Ile Ala
         135             140             145

tac ggg ctg ttc ggc tgc gct ggg acc atc ctg ttc ttc aac ctc ttc    957
Tyr Gly Leu Phe Gly Cys Ala Gly Thr Ile Leu Phe Phe Asn Leu Phe
     150             155             160

ctg gag cgc atc atc tcg ctg ctg gcc ttc atc atg cgc gcc tgc cgg   1005
Leu Glu Arg Ile Ile Ser Leu Leu Ala Phe Ile Met Arg Ala Cys Arg
165             170             175             180

gag cgc cag ctg cgc cgc agc ggc ctg ctg ccc gcc acc ttc cgc cgc   1053
Glu Arg Gln Leu Arg Arg Ser Gly Leu Leu Pro Ala Thr Phe Arg Arg
             185             190             195

ggc tcc gcg ctc tcg gag gcc gac agc ctg gcg ggc tgg aag ccc tcg   1101
Gly Ser Ala Leu Ser Glu Ala Asp Ser Leu Ala Gly Trp Lys Pro Ser
             200             205             210

gtg tac cac gtg ctg ctc atc ctg ggc ctg ttc gcc gtg ctg ctg tcc   1149
Val Tyr His Val Leu Leu Ile Leu Gly Leu Phe Ala Val Leu Leu Ser
             215             220             225

tgc tgc gcc tcg gcc atg tac acc agc gtg gag ggc tgg gac tac gtg   1197
Cys Cys Ala Ser Ala Met Tyr Thr Ser Val Glu Gly Trp Asp Tyr Val
     230             235             240

gac tcg ctc tac ttc tgc ttc gtc acc ttc agc acc atc ggc ttc ggg   1245
Asp Ser Leu Tyr Phe Cys Phe Val Thr Phe Ser Thr Ile Gly Phe Gly
245             250             255             260

gac ctg gtg agc agc cag cac gcc gcc tac cgg aac cag ggg ctc tac   1293
Asp Leu Val Ser Ser Gln His Ala Ala Tyr Arg Asn Gln Gly Leu Tyr
             265             270             275

cgc ctg ggc aac ttc ctc ttc atc ctg ctc ggc gtg tgc tgc att tac   1341
Arg Leu Gly Asn Phe Leu Phe Ile Leu Leu Gly Val Cys Cys Ile Tyr
             280             285             290

tcg ctc ttc aac gtc atc tcc atc ctc atc aag cag gtg ctc aac tgg   1389
Ser Leu Phe Asn Val Ile Ser Ile Leu Ile Lys Gln Val Leu Asn Trp
             295             300             305

atg ctg cgc aag ctg agc tgc cgc tgc tgc gcg cgc tgc tgc ccg gct   1437
Met Leu Arg Lys Leu Ser Cys Arg Cys Cys Ala Arg Cys Cys Pro Ala
```

104

```
cct ggc gcg ccc ctg gcc cgg cgc aat gcc atc acc cca ggc tcc cgg  1485
Pro Gly Ala Pro Leu Ala Arg Arg Asn Ala Ile Thr Pro Gly Ser Arg
325                 330                 335                 340

ctg cgc cgc cgc ctg gcc gcg ctc ggc gcc gac ccc gcg gcc cgc gac  1533
Leu Arg Arg Arg Leu Ala Ala Leu Gly Ala Asp Pro Ala Ala Arg Asp
                    345                 350                 355

agc gac gcc gag ggc cgc cgc ctc tcg ggc gag ctc atc tcc atg cgc  1581
Ser Asp Ala Glu Gly Arg Arg Leu Ser Gly Glu Leu Ile Ser Met Arg
                360                 365                 370

gac ctc acg gcc tcc aac aag gtg tcg ctg gcg ctg ctg cag aag cag  1629
Asp Leu Thr Ala Ser Asn Lys Val Ser Leu Ala Leu Leu Gln Lys Gln
            375                 380                 385

ctg tcg gag acg gcc aac ggc tac ccg cgc agc gtg tgc gtc aac acg  1677
Leu Ser Glu Thr Ala Asn Gly Tyr Pro Arg Ser Val Cys Val Asn Thr
    390                 395                 400

cgc cag aac ggc ttc tcg ggc ggc gtg ggc gcg ctg ggc atc atg aac  1725
Arg Gln Asn Gly Phe Ser Gly Gly Val Gly Ala Leu Gly Ile Met Asn
405                 410                 415                 420

aac cgg ctg gcc gag acc agc gcc tcc agg tag accgcccgtc cgcccgcgcc 1778
Asn Arg Leu Ala Glu Thr Ser Ala Ser Arg  *
                425                 430

ggggaccctc tccaggccgc ggggccgccg ggcgtggttt gcttctctca gtcactgctg 1838
gcgctttctt aatctttatc caataaaatg aaacaaaaaa aattttttta aagaaaaaaa 1898
aaaaaaaaag ggcggatgtt atcaagggca ggttttgggg acgcc              1943
```

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<210> 44
<211> 430
<212> PRT
<213> Homo Sapiens

<400> 44
Met Ser Ser Arg Ser Pro Arg Pro Pro Pro Arg Arg Ser Arg Arg Arg
 1               5                   10                  15
Leu Pro Arg Pro Ser Cys Cys Cys Cys Cys Arg Arg Ser His Leu
            20              25                  30
Asn Glu Asp Thr Gly Arg Phe Val Leu Leu Ala Ala Leu Ile Gly Leu
        35              40                  45
Tyr Leu Val Ala Gly Ala Thr Val Phe Ser Ala Leu Glu Ser Pro Gly
    50                  55                  60
Glu Ala Glu Ala Arg Ala Arg Trp Gly Ala Thr Leu Arg Asn Phe Ser
65                  70                  75                  80
Ala Ala His Gly Val Ala Glu Pro Glu Leu Arg Ala Phe Leu Arg His
                85                  90                  95
Tyr Glu Ala Ala Leu Ala Ala Gly Val Arg Ala Asp Ala Leu Arg Pro
                100                 105                 110
Arg Trp Asp Phe Pro Gly Ala Phe Tyr Phe Val Gly Thr Val Val Ser
            115                 120                 125
Thr Ile Gly Phe Gly Met Thr Thr Pro Ala Thr Val Gly Gly Lys Ala
    130                 135                 140
Phe Leu Ile Ala Tyr Gly Leu Phe Gly Cys Ala Gly Thr Ile Leu Phe
145                 150                 155                 160
Phe Asn Leu Phe Leu Glu Arg Ile Ile Ser Leu Leu Ala Phe Ile Met
            165                 170                 175
```

105

```
Arg Ala Cys Arg Glu Arg Gln Leu Arg Arg Ser Gly Leu Leu Pro Ala
        180                 185             190
Thr Phe Arg Arg Gly Ser Ala Leu Ser Glu Ala Asp Ser Leu Ala Gly
        195             200             205
Trp Lys Pro Ser Val Tyr His Val Leu Leu Ile Leu Gly Leu Phe Ala
210             215             220
Val Leu Leu Ser Cys Cys Ala Ser Ala Met Tyr Thr Ser Val Glu Gly
225             230             235             240
Trp Asp Tyr Val Asp Ser Leu Tyr Phe Cys Phe Val Thr Phe Ser Thr
            245             250             255
Ile Gly Phe Gly Asp Leu Val Ser Ser Gln His Ala Ala Tyr Arg Asn
            260             265             270
Gln Gly Leu Tyr Arg Leu Gly Asn Phe Leu Phe Ile Leu Leu Gly Val
        275             280             285
Cys Cys Ile Tyr Ser Leu Phe Asn Val Ile Ser Ile Leu Ile Lys Gln
290             295             300
Val Leu Asn Trp Met Leu Arg Lys Leu Ser Cys Arg Cys Cys Ala Arg
305             310             315             320
Cys Cys Pro Ala Pro Gly Ala Pro Leu Ala Arg Arg Asn Ala Ile Thr
        325             330             335
Pro Gly Ser Arg Leu Arg Arg Arg Leu Ala Ala Leu Gly Ala Asp Pro
        340             345             350
Ala Ala Arg Asp Ser Asp Ala Glu Gly Arg Arg Leu Ser Gly Glu Leu
        355             360             365
Ile Ser Met Arg Asp Leu Thr Ala Ser Asn Lys Val Ser Leu Ala Leu
        370             375             380
Leu Gln Lys Gln Leu Ser Glu Thr Ala Asn Gly Tyr Pro Arg Ser Val
385             390             395             400
Cys Val Asn Thr Arg Gln Asn Gly Phe Ser Gly Gly Val Gly Ala Leu
            405             410             415
Gly Ile Met Asn Asn Arg Leu Ala Glu Thr Ser Ala Ser Arg
            420             425             430


<210> 45
<211> 2384
<212> DNA
<213> Homo Sapiens

<220>
<221> CDS
<222> (233)...(2260)

<400> 45
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gaggaagggt cactgctgtc tccggaagct cttggctgca aagagagagg atcccgggta 120
tctccctcct tacaaccacc gccacctcct agtgccttag aagccactga cagcccccag 180
ggcaggtgag ccctgcatct ggaataagga tccagaggtc tcgttcagga cc atg gag 238
                                                        Met Glu
                                                        1

agc ggc acc agc agc cct cag cct cca cag tta gat ccc ctg gat gcg 286
Ser Gly Thr Ser Ser Pro Gln Pro Pro Gln Leu Asp Pro Leu Asp Ala
        5               10                  15

ttt ccc cag aag ggc ttg gag cct ggg gac atc gcg gtg cta gtt ctg 334
Phe Pro Gln Lys Gly Leu Glu Pro Gly Asp Ile Ala Val Leu Val Leu
    20                  25                  30

tac ttc ctc ttt gtc ctg gct gtt gga cta tgg tcc aca gtg aag acc 382
Tyr Phe Leu Phe Val Leu Ala Val Gly Leu Trp Ser Thr Val Lys Thr
 35                 40                  45                  50
```

106

```
aaa aga gac aca gtg aaa ggc tac ttc ctg gct gga ggg gac atg gtg    430
Lys Arg Asp Thr Val Lys Gly Tyr Phe Leu Ala Gly Gly Asp Met Val
                55                  60                  65

tgg tgg cca gtg ggt gca tcc ttg ttt gcc agc aat gtt gga agt gga    478
Trp Trp Pro Val Gly Ala Ser Leu Phe Ala Ser Asn Val Gly Ser Gly
            70                  75                  80

cat ttc att ggc ctg gca ggg tca ggt gct gct acg ggc att tct gta    526
His Phe Ile Gly Leu Ala Gly Ser Gly Ala Ala Thr Gly Ile Ser Val
        85                  90                  95

tca gct tat gaa ctt aat ggc ttg ttt tct gtg ctg atg ttg gcc tgg    574
Ser Ala Tyr Glu Leu Asn Gly Leu Phe Ser Val Leu Met Leu Ala Trp
    100                 105                 110

atc ttc cta ccc atc tac att gct ggt cag gtc acc acg atg cca gaa    622
Ile Phe Leu Pro Ile Tyr Ile Ala Gly Gln Val Thr Thr Met Pro Glu
115                 120                 125                 130

tac cta cgg aag cgc ttc ggt ggc atc aga atc ccc atc atc ctg gct    670
Tyr Leu Arg Lys Arg Phe Gly Gly Ile Arg Ile Pro Ile Ile Leu Ala
                135                 140                 145

gta ctc tac cta ttt atc tac atc ttc acc aag atc tcg gta gac atg    718
Val Leu Tyr Leu Phe Ile Tyr Ile Phe Thr Lys Ile Ser Val Asp Met
                150                 155                 160

tat gca ggt gcc atc ttc atc cag cag tct ttg cac ctg gat ctg tac    766
Tyr Ala Gly Ala Ile Phe Ile Gln Gln Ser Leu His Leu Asp Leu Tyr
        165                 170                 175

ctg gcc ata gtt ggg cta ctg gcc atc act gct gta tac acg gtt gct    814
Leu Ala Ile Val Gly Leu Leu Ala Ile Thr Ala Val Tyr Thr Val Ala
        180                 185                 190

ggt ggc ctg gct gct gtg atc tac acg gat gcc ctg cag acg ctg atc    862
Gly Gly Leu Ala Ala Val Ile Tyr Thr Asp Ala Leu Gln Thr Leu Ile
195                 200                 205                 210

atg ctt ata gga gcg ctc acc ttg atg ggc tac agt ttt gcc gcg gtt    910
Met Leu Ile Gly Ala Leu Thr Leu Met Gly Tyr Ser Phe Ala Ala Val
            215                 220                 225

ggt ggg atg gaa gga ctg aag gag aag tac ttc ttg gcc ctg gct agc    958
Gly Gly Met Glu Gly Leu Lys Glu Lys Tyr Phe Leu Ala Leu Ala Ser
            230                 235                 240

aac cgg agt gag aac agc agc tgc ggg ctg ccc cgg gaa gat gcc ttc    1006
Asn Arg Ser Glu Asn Ser Ser Cys Gly Leu Pro Arg Glu Asp Ala Phe
        245                 250                 255

cat att ttc cga gat ccg ctg aca tct gat ctc ccg tgg ccg ggg gtc    1054
His Ile Phe Arg Asp Pro Leu Thr Ser Asp Leu Pro Trp Pro Gly Val
        260                 265                 270

cta ttt gga atg tcc atc cca tcc ctc tgg tac tgg tgc acg gat cag    1102
Leu Phe Gly Met Ser Ile Pro Ser Leu Trp Tyr Trp Cys Thr Asp Gln
275                 280                 285                 290

gtg att gtc cag cgg act ctg gct gcc aag aac ctg tcc cat gcc aaa    1150
```

107

```
Val Ile Val Gln Arg Thr Leu Ala Ala Lys Asn Leu Ser His Ala Lys
              295                 300                 305

gga ggt gct ctg atg gct gca tac ctg aag gtg ctg ccc ctc ttc ata    1198
Gly Gly Ala Leu Met Ala Ala Tyr Leu Lys Val Leu Pro Leu Phe Ile
              310                 315                 320

atg gtg ttc cct ggg atg gtc agc cgc atc ctc ttc cca gat caa gtg    1246
Met Val Phe Pro Gly Met Val Ser Arg Ile Leu Phe Pro Asp Gln Val
              325                 330                 335

gcc tgt gca gat cca gag atc tgc cag aag atc tgc agc aac ccc tca    1294
Ala Cys Ala Asp Pro Glu Ile Cys Gln Lys Ile Cys Ser Asn Pro Ser
      340                 345                 350

ggc tgt tcg gac atc gcg tat ccc aaa ctc gtg ctg gaa ctc ctg ccc    1342
Gly Cys Ser Asp Ile Ala Tyr Pro Lys Leu Val Leu Glu Leu Leu Pro
355                 360                 365                 370

aca ggg ctc cgt ggg ctg atg atg gct gtg atg gtg gcg gct ctc atg    1390
Thr Gly Leu Arg Gly Leu Met Met Ala Val Met Val Ala Ala Leu Met
              375                 380                 385

tcc tcc ctc acc tcc atc ttt aac agt gcc agc acc atc ttc acc atg    1438
Ser Ser Leu Thr Ser Ile Phe Asn Ser Ala Ser Thr Ile Phe Thr Met
              390                 395                 400

gac ctc tgg aat cac ctc cgg cct cgg gca tct gag aag gag ctc atg    1486
Asp Leu Trp Asn His Leu Arg Pro Arg Ala Ser Glu Lys Glu Leu Met
              405                 410                 415

att gtg ggc agg gtg ttt gtg ctg ctg ctg gtc ctg gtc tcc atc ctc    1534
Ile Val Gly Arg Val Phe Val Leu Leu Leu Val Leu Val Ser Ile Leu
      420                 425                 430

tgg atc cct gtg gtc cag gcc agc cag ggc ggc cag ctc ttc atc tat    1582
Trp Ile Pro Val Val Gln Ala Ser Gln Gly Gly Gln Leu Phe Ile Tyr
435                 440                 445                 450

atc cag tcc atc agc tcc tac ctg cag ccg cct gtg gcg gtg gtc ttc    1630
Ile Gln Ser Ile Ser Ser Tyr Leu Gln Pro Pro Val Ala Val Val Phe
              455                 460                 465

atc atg gga tgt ttc tgg aag agg acc aat gaa aag ggt gcc ttc tgg    1678
Ile Met Gly Cys Phe Trp Lys Arg Thr Asn Glu Lys Gly Ala Phe Trp
              470                 475                 480

ggc ctg atc tcg ggc ctg ctc ctg ggc ttg gtt agg ctg gtc ctg gac    1726
Gly Leu Ile Ser Gly Leu Leu Leu Gly Leu Val Arg Leu Val Leu Asp
              485                 490                 495

ttt att tac gtg cag cct cga tgc gac cag cca gat gag cgc ccg gtc    1774
Phe Ile Tyr Val Gln Pro Arg Cys Asp Gln Pro Asp Glu Arg Pro Val
      500                 505                 510

ctg gtg aag agc att cac tac ctc tac ttc tcc atg atc ctg tcc acg    1822
Leu Val Lys Ser Ile His Tyr Leu Tyr Phe Ser Met Ile Leu Ser Thr
515                 520                 525                 530

gtc acc ctc atc act gtc tcc acc gtg agc tgg ttc aca gag cca ccc    1870
Val Thr Leu Ile Thr Val Ser Thr Val Ser Trp Phe Thr Glu Pro Pro
              535                 540                 545
```

```
tcc aag gag atg gtc agc cac ctg acc tgg ttt act cgt cac gac ccc    1918
Ser Lys Glu Met Val Ser His Leu Thr Trp Phe Thr Arg His Asp Pro
            550             555             560

gtg gtc cag aag gaa caa gca cca cca gca gct ccc ttg tct ctt acc    1966
Val Val Gln Lys Glu Gln Ala Pro Pro Ala Ala Pro Leu Ser Leu Thr
            565             570             575

ctc tct cag aac ggg atg cca gag gcc agc agc agc agc agc gtc cag    2014
Leu Ser Gln Asn Gly Met Pro Glu Ala Ser Ser Ser Ser Ser Val Gln
            580             585             590

ttc gag atg gtt caa gaa aac acg tct aaa acc cac agc tgt gac atg    2062
Phe Glu Met Val Gln Glu Asn Thr Ser Lys Thr His Ser Cys Asp Met
595             600             605             610

acc cca aag cag tcc aaa gtg gtg aag gcc atc ctg tgg ctc tgt gga    2110
Thr Pro Lys Gln Ser Lys Val Val Lys Ala Ile Leu Trp Leu Cys Gly
            615             620             625

ata cag gag aag ggc aag gaa gag ctc ccg gcc aga gca gaa gcc atc    2158
Ile Gln Glu Lys Gly Lys Glu Glu Leu Pro Ala Arg Ala Glu Ala Ile
            630             635             640

ata gtt tcc ctg gaa gaa aac ccc ttg gtg aag acc ctc ctg gac gtc    2206
Ile Val Ser Leu Glu Glu Asn Pro Leu Val Lys Thr Leu Leu Asp Val
            645             650             655

aac ctc att ttc tgc gtg agc tgc gcc atc ttt atc tgg ggc tat ttt    2254
Asn Leu Ile Phe Cys Val Ser Cys Ala Ile Phe Ile Trp Gly Tyr Phe
            660             665             670

gct tag tgtggggtga acccagggagt ccaaactctg tttctcttca gtgctccatt    2310
Ala  *
675

ttttttaatga aagaaaaaat aataaagctt ttgtttacca aaaaaaaaaa aaaaaaaaaa  2370
aaaaaaaaaa aaaa                                                     2384

<210> 46
<211> 675
<212> PRT
<213> Homo Sapiens

<400> 46
Met Glu Ser Gly Thr Ser Ser Pro Gln Pro Pro Gln Leu Asp Pro Leu
 1               5              10              15
Asp Ala Phe Pro Gln Lys Gly Leu Glu Pro Gly Asp Ile Ala Val Leu
            20              25              30
Val Leu Tyr Phe Leu Phe Val Leu Ala Val Gly Leu Trp Ser Thr Val
            35              40              45
Lys Thr Lys Arg Asp Thr Val Lys Gly Tyr Phe Leu Ala Gly Gly Asp
     50              55              60
Met Val Trp Trp Pro Val Gly Ala Ser Leu Phe Ala Ser Asn Val Gly
65              70              75              80
Ser Gly His Phe Ile Gly Leu Ala Gly Ser Gly Ala Ala Thr Gly Ile
            85              90              95
Ser Val Ser Ala Tyr Glu Leu Asn Gly Leu Phe Ser Val Leu Met Leu
            100             105             110
Ala Trp Ile Phe Leu Pro Ile Tyr Ile Ala Gly Gln Val Thr Thr Met
            115             120             125
```

109

```
Pro Glu Tyr Leu Arg Lys Arg Phe Gly Gly Ile Arg Ile Pro Ile Ile
    130                 135                 140
Leu Ala Val Leu Tyr Leu Phe Ile Tyr Ile Phe Thr Lys Ile Ser Val
145                 150                 155                     160
Asp Met Tyr Ala Gly Ala Ile Phe Ile Gln Gln Ser Leu His Leu Asp
                165                 170                 175
Leu Tyr Leu Ala Ile Val Gly Leu Leu Ala Ile Thr Ala Val Tyr Thr
                180                 185                 190
Val Ala Gly Gly Leu Ala Ala Val Ile Tyr Thr Asp Ala Leu Gln Thr
                195                 200                 205
Leu Ile Met Leu Ile Gly Ala Leu Thr Leu Met Gly Tyr Ser Phe Ala
    210                 215                 220
Ala Val Gly Gly Met Glu Gly Leu Lys Glu Lys Tyr Phe Leu Ala Leu
225                 230                 235                     240
Ala Ser Asn Arg Ser Glu Asn Ser Ser Cys Gly Leu Pro Arg Glu Asp
                245                 250                 255
Ala Phe His Ile Phe Arg Asp Pro Leu Thr Ser Asp Leu Pro Trp Pro
                260                 265                 270
Gly Val Leu Phe Gly Met Ser Ile Pro Ser Leu Trp Tyr Trp Cys Thr
                275                 280                 285
Asp Gln Val Ile Val Gln Arg Thr Leu Ala Ala Lys Asn Leu Ser His
    290                 295                 300
Ala Lys Gly Gly Ala Leu Met Ala Ala Tyr Leu Lys Val Leu Pro Leu
305                 310                 315                     320
Phe Ile Met Val Phe Pro Gly Met Val Ser Arg Ile Leu Phe Pro Asp
                325                 330                 335
Gln Val Ala Cys Ala Asp Pro Glu Ile Cys Gln Lys Ile Cys Ser Asn
                340                 345                 350
Pro Ser Gly Cys Ser Asp Ile Ala Tyr Pro Lys Leu Val Leu Glu Leu
                355                 360                 365
Leu Pro Thr Gly Leu Arg Gly Leu Met Met Ala Val Met Val Ala Ala
    370                 375                 380
Leu Met Ser Ser Leu Thr Ser Ile Phe Asn Ser Ala Ser Thr Ile Phe
385                 390                 395                     400
Thr Met Asp Leu Trp Asn His Leu Arg Pro Arg Ala Ser Glu Lys Glu
                405                 410                 415
Leu Met Ile Val Gly Arg Val Phe Val Leu Leu Leu Val Leu Val Ser
                420                 425                 430
Ile Leu Trp Ile Pro Val Val Gln Ala Ser Gln Gly Gly Gln Leu Phe
                435                 440                 445
Ile Tyr Ile Gln Ser Ile Ser Ser Tyr Leu Gln Pro Pro Val Ala Val
    450                 455                 460
Val Phe Ile Met Gly Cys Phe Trp Lys Arg Thr Asn Glu Lys Gly Ala
465                 470                 475                     480
Phe Trp Gly Leu Ile Ser Gly Leu Leu Leu Gly Leu Val Arg Leu Val
                485                 490                 495
Leu Asp Phe Ile Tyr Val Gln Pro Arg Cys Asp Gln Pro Asp Glu Arg
                500                 505                 510
Pro Val Leu Val Lys Ser Ile His Tyr Leu Tyr Phe Ser Met Ile Leu
    515                 520                 525
Ser Thr Val Thr Leu Ile Thr Val Ser Thr Val Ser Trp Phe Thr Glu
    530                 535                 540
Pro Pro Ser Lys Glu Met Val Ser His Leu Thr Trp Phe Thr Arg His
545                 550                 555                     560
Asp Pro Val Val Gln Lys Glu Gln Ala Pro Pro Ala Ala Pro Leu Ser
                565                 570                 575
Leu Thr Leu Ser Gln Asn Gly Met Pro Glu Ala Ser Ser Ser Ser Ser
                580                 585                 590
Val Gln Phe Glu Met Val Gln Glu Asn Thr Ser Lys Thr His Ser Cys
    595                 600                 605
Asp Met Thr Pro Lys Gln Ser Lys Val Val Lys Ala Ile Leu Trp Leu
    610                 615                 620
```

```
Cys Gly Ile Gln Glu Lys Gly Lys Glu Glu Leu Pro Ala Arg Ala Glu
625             630         635                 640
Ala Ile Ile Val Ser Leu Glu Glu Asn Pro Leu Val Lys Thr Leu Leu
            645             650                 655
Asp Val Asn Leu Ile Phe Cys Val Ser Cys Ala Ile Phe Ile Trp Gly
            660             665                 670
Tyr Phe Ala
        675
```